

TOWN OF BURRILLVILLE

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Harrisville, Rhode Island
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TOWN BUILDING
HARRISVILLE, R.I.

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MEMORANDUM

TO: Burrillville Planning Board
FROM: Tom Kravitz, Town Planner *TK*
RE: Comprehensive Plan Analysis by INVENERGY
Pimentel Consulting, Inc.
CC: Mike Wood, Town Manager
Oleg Nikolyszyn, Town Solicitor
Mike McElroy, Special Counsel
DATE: June 18, 2016

Dear Board,

The applicant's planner did an excellent job of stating how they feel the CREC meets our Comprehensive Plan (See Executive Summary as prepared by Edward Pimentel). Below is some reasoning as to why it may not.

1. Section I, Summary of CREC proposal, page 1 – Pimentel states that the site will have naturally vegetated frontage which will provide screening from the residences situated along Wallum Lake Road. The project actually proposes a new access road that compromises this point by disturbing forested frontage. See Town Consultant CDR report dated June 15th and 16th addressed to Mr. Mike Wood and Jeff Partington respectively. The CDR report does an excellent job of describing the benefits of the common driveway with Algonquin along with prescribed reduction of the lay-down area.
2. Section II, State Energy Plan, page 2 – These eight points are being challenged by data requests of other agencies, namely, Conservation Law Foundation (CLF). It's questionable whether or not the State Guide Plan is relevant here. But if that is the assertion of the applicant, the SGP talks much more about preserving Rhode Island's western rural areas and locating growth inside Rhode Island's Urban Services Boundary. Given the financial struggles Rhode Island's inner cities face that one can read about seemingly every day, one wonders why such a revenue juggernaut such as the CREC is not located within a city. If the State chooses to place all of its weight on the Energy Element over all other State Guide Plan Elements, that's their decision. The first two points under Sustainability are all virtual unknowns unless described to us otherwise by our Air Consultant, Eric Epner.
3. Section III, Comprehensive Plan Consistency Analysis, page 3 – Pimentel does an excellent job by recognizing the existing Goals, Policies and Actions within Burrillville's Comprehensive Plan related to Electric Generating Infrastructure and Facilities. Beginning with Goal IX.5 "Recognize the important role the Town plays as a host to major energy suppliers, and ensure that the interests of the Town and

its residents are maintained in the forefront of future siting decisions.” This language has been in the Town’s Comprehensive Plan for years, going back to the 1993 Plan where the language first surfaced. Previous to the 1993 Plan, there is no evidence of a Comprehensive Plan according to the Town Clerk going back to 1966. One can only assume that this language was inserted due to the OSP Plant of the late 1980’s.

Mr. Pimentel continues with similar Policy and Action language; Policy IX.5.a “Develop adequate location and siting criteria within the Town’s land use policies for power generating plants. These criteria shall be used to negotiate with power plant developers and State Energy Facility Siting Council.” Implementation Action IX.5.a.1 Amend the Zoning Ordinance to adequately address power generating plants, including consideration of floating zone, performance standards, and site plan review.

While the Town does in fact contain Development Plan Review regulations, it does not offer standards specific to Power Plants, nor has the Town ever adopted performance standards or contemplated a power plant floating zone. Perhaps the lack of urgency to adopt such policies was actually due to the presence of Algonquin and OSP and the refusal to imagine yet another major facility like the CREC. This language could very well have been contemplated in order to regulate a future expansion of those existing facilities.

Be that as it may, the role of the Planning Board is to contemplate not only those policies which recognize the obvious, such as major utilities being located here, but also consider the impact of the current application and how it may affect other Comprehensive Plan Goals, Policies or Actions. For example, a major concern related to water availability has arisen. Reports indicate the power plant could use upwards of 642 gpm while only 600 gpm is known to be available from 3A. And, flow studies must be completed to understand the impact on the Town’s Aquifer System due to the fact several new wells in Harrisville have never operated in conjunction with Pascoag Wells 3 and 3A (See Stantec report for Harrisville Water).

A logical question must be asked along with potentially siting the CREC, “Should Burrillville consider a permanent development moratorium for all projects requiring public water?” Such an action would greatly impact the many other Goals, Policies, and Actions as they relate to redevelopment initiatives of the Town’s village centers. One could argue that the CREC is forcing the Town to place all of its Land Use “cards” on the table now, for the Chicago-based company, like a game of poker. Are we all in? And who decides? Relegating the Town to developments that do not rely on public water and sewer will cease any more of the good work that was accomplished within the Town’s villages over the past fifteen years. A development restriction on village growth will most certainly put more pressure on developing what open space the Town has left. It would create for more sprawling growth, which again, would beg another conversation I brought up in a previous memo; if the CREC is sited and water availability maxed out, how does the Town use its revenue? How much is reserved for open space protection?

Some of the Goals, Policies and Actions that would be halted include: Goal IX.2 To maintain and improve the small village character of the Town. Policy IX.2.a Encourage continuation of the village development pattern through zoning. Action IX.2.a.1 Promote the maintenance and expansion of R-12, R-20 zones within the villages of Harrisville, Glendale, Oakland, Mapleville, Pascoag and Nasonville. Action IX.2.b.1 Promote higher lot density and smaller lot frontages in village center areas where public water is available. IX.2.b.3 Establish a Redevelopment Agency to redevelop distressed villages and encourage mixed uses and compact village land use patterns.

This is about more than just rendering an opinion as to consistency with our comp plan. Other aspects of the Town's future land use decision are at stake here.

4. Subsection A - Air Quality, page 3, Pimentel states because the CREC is compliant with NAAQS it's consistent with Goal II.6 To ensure that air quality in Burrillville meets NAAQS and maintain air quality levels in the Town higher than these standards." He also states, from a regional perspective, the CREC is consistent with Policy II.6.a "Encourage measures which reduce air pollution levels."

Will the CREC really do this by introducing 3.6 million tons of CO2 and other contaminants annually? Does our Comprehensive Plan rest on regional air quality standards? One could argue that the reason it states "higher air quality standards" is because we want to affect air in a manner that is cleaner than that of the region. I made a statement at a previous workshop that I still stand by; Burrillville is essentially being asked to take one for the team in terms of air quality. And the team is a region of States. Dirtier plants close down within a region defined by EPA; a cleaner burning plant opens in Burrillville resulting in cleaner air for the region. And a Chicago company pays credits to something. Hopefully the Town's air consultant, Eric Epner can weigh in informatively.

Mr. Pimentel often cites the Air Dispersion Modeling Report and associated Health Risk Assessment. As of right now, Data Response 7 contains many questions and responses that are critical to the HRA, that question the HRA, and those responses have yet to be verified as sufficient.

5. Subsection C - Visual pages 5, 6 and 7. Citing the CREC within the Casimir Pulaski State Forest and stating it therefore complies with Town site plan guidelines that require buffering, is a predictable interpretation of consistency on behalf of the applicant. However this position conflicts with many other goals and policies which are viewed as a double-edged sword with respect to interpretation.

Consider the following: Goal IX.3 Establish a balance between industrial land uses and conservation land uses that services the needs of the community, Action IX.3.b.1 Create open space systems and corridors that protect complete ecological units and provide character to the built environment. IX.3.b.4 Preserve and restore river and water bodies for wildlife habitat, water supply and open space corridors. Policy IX.4.b Recognize the Town's scenic rural landscapes as an important cultural and economic resource and act to preserve them. Policy IX.4.c Encourages renewable energy sources. The CREC conflicts with all of these.

MEMO

To: Tom Kravitz, Town Planner

From: Louise Phaneuf, Town Clerk

Date: June 16, 2016

RE: Burrillville Comprehensive Plan – adopted between 1966 and 1993

As you asked, I reviewed Council minutes for the period between 1966 and 1993. I see no record of a comprehensive plan having been adopted during that time. It appears that in 1989 the Planning Board Chairman asked for the outdated plan to be reviewed. I'll send you a copy of that correspondence shortly. The Town Council agreed. It seems that the 1993 Comprehensive Plan was the outcome of that vote.



June 15, 2016

Mr. Michael Wood
Town Manager
Town of Burrillville
100 Main Street
Harrisville, RI 02830

Re: Clear River Energy Center Ammonia Storage Review

Dear Mr. Wood:

At your request, CDR Maguire and Sovereign Consulting Inc. (Sovereign) has provided a review of the issues related to storage of ammonia at the proposed Clear River Energy Facility.

SUMMARY

The EFSB application states that the facility will include storage for approximately 40,000 gallons of aqueous ammonia at concentrations below 20%. The ammonia will be used in the plant emission controls.

3.2.6 40 CFR 68 - Chemical Accident Prevention Provisions

40 CFR 68 sets forth the list of regulated substances and thresholds, and the requirements for owners and operators of stationary sources concerning the prevention of accidental releases. It applies to a stationary source that has more than a threshold quantity of a regulated substance.

The only regulated substance which will be stored at the Facility is ammonia. The threshold quantity for ammonia listed on Table 1 of 40 CFR 68 is 10,000 pounds at a concentration of 20% or greater. The ammonia to be stored at the Facility will be at a 19% concentration. Therefore, 40 CFR 68 and its associated requirements do not apply to the Facility because it will not store a regulated substance at more than its threshold quantity.

The General Duty Clause

Under the Clean Air Act Section 112(r)(1), the General Duty Clause states: "The owners and operators of stationary sources producing, processing, handling or storing such substances [i.e., a chemical in 40 CFR part 68 or any other extremely hazardous substance] have a general duty [in the same manner and to the same extent as the general duty clause in the Occupational Safety and Health Act (OSHA)] to identify hazards which may result from (such) releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur."

In the Clean Air Act Amendments of 1990, Congress enacted Section 112(r)(1), also known as the General Duty Clause (GDC), which makes the owners and operators of facilities that have regulated and other extremely hazardous substances responsible for ensuring that their chemicals are managed safely. Facilities have been required to comply with GDC since November 1990.

The General Duty Clause applies to **any** stationary source producing, processing, handling, or storing regulated substances or other extremely hazardous substances. "Other extremely hazardous substances" are any chemicals listed in 40 CFR part 68, or any other chemicals, which may be considered extremely hazardous. Facilities subject to the General Duty Clause are, among other things, responsible for the following:

- Knowing the hazards posed by the chemicals and assessing the impacts of possible releases,
- Designing and maintaining a safe facility to prevent accidental releases, and
- Minimizing the consequences of accidental releases that do occur.

SUMMARY OF RECOMMENDATIONS

Since the cutoff for ammonia under 40 CFR 68 is 20%, it would be advisable for the CREC project team to evaluate the potential risk of a chemical accident under the Risk Management Plan requirements. At a minimum, the provisions for the prevention of chemical accidents should be addressed under the provisions of the General Duty Clause. Please be advised that even though the CREC facility is slightly below the RMP requirements, the use of regulated substances or any other extremely hazardous substance in any amount is subject to the General Duty Clause under EPA.

The CREC facility should consider conducting an impact zone analysis for the proposed storage of 40,000 gallons of 19% aqueous ammonia.

The CREC facility should consider a less hazardous chemical than 19% aqueous ammonia for use in the proposed plant emission control system.

The Pascoag Fire Department should be consulted concerning the equipment and training to respond to chemical accidents at CREC.

The Burrillville Hazard Mitigation Plan 2015 should be updated to include the CREC prior to the storage of ammonia on site.

Mr. Michael Wood
June 15, 2016
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We appreciate the opportunity to assist the Town of Burrillville with these issues. If you have questions please contact me at your convenience

Very truly yours,

CDR MAGUIRE INC.

A handwritten signature in blue ink, appearing to read 'J. A. Jackson', with a stylized flourish at the end.

James A Jackson, P.E.
Project Manager



CDR | MAGUIRE

June 16, 2016

Mr. Jeffrey Partington
Chairman
Burrillville Planning Board
144 Harrisville Main Street
Harrisville, RI 02830

Re: Clear River Energy Center Traffic Impact Study Review

Dear Mr. Wood:

At your request, CDR Maguire's Traffic Engineer, James Coogan, PE, has reviewed the Developer's report entitled "Traffic Impact Study for the Clear River Energy Center" dated May 2016 and prepared by McMahon Transportation Engineers and Planners.

In essence, it identifies two unsignalized intersections in Burrillville that will undergo increased delay during peak hours. It offers no mitigation for these increases, and in fact there's little that could be done to these intersections to improve their capability to accept the increased volumes:

COMMENTS

We offer the following observations and comments:

1. Page 3: By what criteria were only the driveway and two unsignalized intersections identified for study? Were no other intersections along the Rte 100/Rte. 44 corridor affected by a 400 vph site traffic increase?
2. Page 5: Is Main Street really 62 feet wide?
3. Page 7: The statement that the weekday afternoon peak hour of adjacent streets occurred between 5PM and 6PM (3rd para) is not supported in the appendices.
4. Page 8: How was the period (3:15 – 4:15) in the heading of far right column determined? See comment 3 above.
5. Page 11: Route 100 / Route 44 roundabout: While no detours are anticipated, couldn't other traffic control strategies such as temporary lane blockage or temporary alternating traffic flow introduce traffic disruption and delays?
6. Page 25: 3rd para - Please clarify the PM Peak Hour (See comment 4 above)
7. Page 28: 2021 Construction Build, Pascoag Main / South Main - Please define the "short duration" of the degraded turning movement operation.
8. Page 28: 2021 Construction Build, Pascoag Main / South Main – How much of a decline in level of service would have been experienced had we NOT been conservative?
9. Page 29: 2021 Construction Build, Pascoag Main / Church – Please see comments 7 & 8.
10. Page 30: Table 6 – Is there sufficient Intersection sight distance in both directions? Table and text are not clear on this.

Mr. Jeffrey Partington

June 16, 2016

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11. Page 30: The last paragraph refers to adequate sight distance for heavy vehicle access, but the bottom of Page 29 states the design vehicle is a single unit truck. Are these the same vehicles?

SUMMARY

The report asserts that there will be noticeable delays during the construction phase of the project, when over 400 additional vehicles per peak hour may be experienced. Further, it asserts that the actual, final, operating traffic effects will be minimal, with less than 40 vehicles per peak hour. Both of these assertions appear to be true.

During the Construction Stage, Northbound traffic on South Main Street at Pascoag Main Street is projected to see AM Peak Hour Level-of-Service drop from "C" to "F" (see comment 7). Similarly, at the Church Street southbound approach to Pascoag Main Street, traffic is projected to experience a PM Peak Hour Level-of-Service drop from "E" to "F" (see comment 9), with an increase in delay of about 80 seconds per vehicle for that approach.

RECOMMENDATIONS

CDR Maguire recommends that the developer address our comments and confirm that their conclusions remain valid.

The proponent's Appendix "A" to the Traffic Impact Study notes the commitment to an appropriate level of restoration for roadway sections degraded by the construction-related traffic. The Town may wish to pursue a firmer commitment with regard to identifying degraded areas and the appropriate restoration.

We appreciate the opportunity to assist the Town of Burrillville with these issues. If you have questions please contact me at your convenience

Very truly yours,

CDR MAGUIRE INC.



James A Jackson, P.E.

Project Manager

Cc: Michael Wood, Burrillville Town Manager
Thomas Kravitz, Burrillville Town Planner



CDR | **MAGUIRE**

June 16, 2016

Mr. Jeffrey Partington
Chairman
Burrillville Planning Board
144 Harrisville Main Street
Harrisville, RI 02830

Re: Clear River Energy Center Master Plan Drawing Package Review

Dear Mr. Wood:

At your request, CDR Maguire and Sovereign Consulting Inc. (Sovereign) has provided a review of the documents submitted to the Planning Board on May 9, 2016. The submittal included a set of plans titled "Master Plan Drawing Package for Invenergy Clear River Energy Center" Dated March, 2016.

SUMMARY

On May 9, 2016 Invenergy submitted a Master Plan Submission to the Burrillville Planning Board. The submission included a set of plans that have been reviewed by CDR Maguire and Sovereign. The submittal did not include a stormwater report or traffic report and the plans did not provide detail that would normally be anticipated for a review. The Town Planner sent a letter to Invenergy's attorney on May 11, 2016 requesting additional information. A Traffic Study was received on May 27, 2016. The following are our review comments on the plans submitted, we will update our review as more information becomes available.

SUMMARY OF RECOMMENDATIONS

CDR Maguire and Sovereign recommend the following:

Request that Invenergy perform a stormwater analysis and provide a Stormwater Report and plans for the stormwater system proposed.

Request that Invenergy consider using Algoquin Lane in lieu of construction of the proposed access road. If this is not practical Invenergy should provide reasoning why this is not practicable, including information on the use of the existing Algoquin Lane and why this would not be suitable.

Request that Invenergy consider reducing the size of the laydown area or having off-site construction parking and staging to offset the massive amounts of wetland impacts.

STORMWATER

The plans indicate three stormwater detention ponds, no other drainage elements are indicated on the plans. These plans are not sufficient to address the projects stormwater needs, plans are needed that clearly indicate what is being done to collect, detain, and treat stormwater on the site.

Development of the site will result in increased stormwater run-off from the site, the developer will be required to treat and detain the run-off to avoid impacts to the areas receiving the run-off. The RIDEM Stormwater Design and Installation Standards Manual provides guidance for evaluating impacts of development and designing drainage elements to address these impacts. The developer should prepare a stormwater report to evaluate the impacts and design a drainage system that will address the impacts of the development.

WETLANDS

Sovereign has reviewed the plans to evaluate wetland impacts from construction of the proposed CREC, wetland impacts on the site need to be avoided and mitigated to the fullest extent practical.

Background. The current plans incorporate the construction of a new road which will pass directly through wetlands within the vicinity of the Proposed CREC Site. In addition to the proposed road the construction, the CREC plant is proposing lay down area and construction staging/parking within 50-foot perimeter wetlands.

The existing Algonquin gas facility has an access road that runs along the northern edge of the proposed CREC property (Algonquin Lane). Algonquin currently provides easement grants to SPRINT to service its cell tower located on the backside of their facility. Algonquin Lane may be suitable for use as the CREC site access road.

The current plan set and submittal states that the roadway needs to be able to handle large capacity truck loads. Algonquin Lane was established to construct the Algonquin facility and was clearly able to handle large trucks bringing in heavy equipment. Minor reconfiguration of the proposed CREC facility layout would allow for a more direct route into the CREC site without many sharp turns and without the need to construct a new road.

In addition to the new access road to the facility, the plans also include the construction of an access road to the new transmission lines as well as the temporary construction parking and laydown area, which would be further impacting wetlands. The parking and laydown area would clear cut the wetlands and make the area unsuitable for re-establishing current wetland conditions. Compaction of soils and removal of mature trees which makeup these forested wetlands take more than 40 to 50 years to re-grow. These functions and values cannot be restored once lost.

Avoidance of Wetland Impacts. The utilization of the Algonquin Lane would avoid the direct impact of 1.4 acres of wetland. This would also keep a larger contiguous wetland area and not segment the wetlands with culverts and permanent impervious surfaces. The reduction of paved surfaces also reduces runoff and contamination which would be released to the surrounding wetlands. These impacts are not always considered when looking at the full impacts to the area. The wetlands would further be impacted as the roadway would need to stay clear of vegetation and be maintained – thus creating a wider travel corridor than stated in the plans. Though the area might be vegetated it will be regularly disturbed throughout the growing season through mowing and vegetative maintenance practices. The removal of large broad leaved vegetation increases surface temperatures of the water within the wetland and reduces the quality of habitat for wetland wildlife. Additional sedimentation and

Mr. Jeffrey Partington

June 16, 2016

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disturbance from traffic will further reduce the quality and function of the wetlands where the road crossing is proposed.

Moving the roadway to connect near the proposed CREC parking area and having the main entrance to CREC be on the northeast side of the proposed facility would reduce wetland impacts.

CREC has not addressed any of these concerns within their most recent submission to the planning board.

Recommendations

- Request that Algonquin Lane be shared and a redesign of facility entrance be created.
- If denied have detailed reasoning why this is not practicable, including information on the use of the existing Algonquin Lane and why this would not be suitable.
- Consider then reducing the size of the laydown area or having off-site construction parking and staging to offset the massive amounts of wetland impacts. If reducing the size of the construction laydown areas and parking can be reduced by at least 2.25 acres this may be able to be used as a mitigation effort of wetland avoidance and would offset the impact of the roadway, if it would have to be used.
- Have further well data or current water levels of the wetlands be monitored now. This would tell historic water table values in the wetland to monitor for post construction changes.

TRAFFIC

Invenergy submitted a traffic report entitled "Traffic Impact Study for the Clear River Energy Center" dated May 2016 and prepared by McMahon Transportation Engineers and Planners. CDR Maguire reviewed this report and provided comments in our June 9, 2016 review letter.

We appreciate the opportunity to assist the Town of Burrillville with these issues. If you have questions please contact me at your convenience

Very truly yours,

CDR MAGUIRE INC.



James A Jackson, P.E.
Project Manager

Cc: Michael Wood, Burrillville Town Manager
Thomas Kravitz, Burrillville Town Planner



CDR | MAGUIRE

June 16, 2016

Mr. Michael Wood
Town Manager
Town of Burrillville
100 Main Street
Harrisville, RI 02830

Re: Clear River Energy Center MTBE Issue Review

Dear Mr. Wood:

At your request, CDR Maguire and Sovereign Consulting Inc. (Sovereign) has provided a review of the issues related to the use of the Pascoag Utility District Water and disposal of waste process water at the Burrillville Sewer Treatment Facility.

SUMMARY

Invenergy has submitted an application to the Energy Facility Siting Board (EFSB) for construction of the Clear River Energy Center. In their application they are proposing to utilize water from the Pascoag Utility District (PUD) Well #3A for the proposed power plants process water, potable water will be provided to the plant from a potable water source. Well 3A was closed in 2001 due to petroleum contamination including methyl tert-butyl ether (MTBE) from an off-site gasoline storage tank. The plant will require approximately 104,000 gallons per day (gpd) (72 gpm) firing natural gas under normal full-load conditions, in the summer the plant will require approximately 225,000 gpd (156 gpm). During periods when the plant is firing oil, expected for periods of time during the winter months, the daily water demand will increase to 925,000 gpd (642 gpm). Following treatment with granular activated carbon (GAC) at Well #3A, and use as process water at the CREC facility, Invenergy is proposing to discharge the waste process water as well as sanitary flows to the Burrillville Sewer Treatment Facility.

In their EFSB application Invenergy is proposing to treat the well water through an activated carbon treatment system. They are proposing to treat the MTBE levels to a maximum of 55 µg/l, one µg/l is equal to one part per billion (ppb). The water will then be piped to the power plant through a dedicated water line to a raw water tank on the site. The raw water will be further treated at the power plant site through a reverse osmosis and electro-deionization process to produce high purity water required by the projects generation steam cycle process.

Invenergy is proposing to discharge wastewater to the Burrillville Sewer Treatment facility. Wastewater will include the wastewater generated from the high purity treatment process; blowdown from the steam generators and evaporative coolers; housecleaning; and sanitary wastewater from the staff. Wastewater will be pumped from the site to a Burrillville sewer manhole on Wallum Lake Road. Typical daily flows will vary between 69,000 gpd to 89,000 gpd with peak flows of 200,000 gpd when the plant is fired with oil.

Invenergy has submitted additional information on the use of the PUD well water in response to the Town's Data Requests 8-1 and 8-2. In response to Data Request 8-1 Invenergy states that the well water

will be treated through a two stage granular activated carbon (GAC) system, the first stage will treat the well water to 40 µg/l and the second stage will be capable of treating the water to a non-detect level (i.e. - <0.5 µg/l as achieved by USEPA Method 524). In response to 8-2 Invenergy explains that they have calculated the 200 µg/l maximum MTBE in the sewer discharge based on the well water being treated to a maximum MTBE level of 40 µg/l. At the power plant the process water will be further treated to provide high purity process water, during this treatment the MTBE will become more concentrated.

CDR Maguire and Sovereign have reviewed the impacts of Invenergy's proposal to use the MTBE contaminated water from the PUD Well 3A. The review focused on the issues related to treatment of the well water and impacts of discharging wastewater with MTBE contamination to the Burrillville Sewer Treatment Facility. The RIDEM is evaluating the impacts to the aquifer. The Burrillville Sewer Commission is evaluating impacts of the Invenergy discharge with the Sewer Treatment Facilities capacity.

SUMMARY OF RECOMMENDATIONS

CDR Maguire and Sovereign recommend that Invenergy design the treatment system for the well water to remove the MTBE to a non-detect level as Invenergy has stated in their response to Data Request 8-1. We recommend that the maximum allowable limit be reduced to less than 0.5 µg/l (ppb) of MTBE as well as other related petroleum constituents.

Since data on the contaminants in Well #3A vary due to flow rate from the pump, we recommend that Invenergy perform a pump test and sampling and testing from Well #3A as well as the remedial wells and the Pascoag River. In their response to Data Request 11-1 that was received on June 13, Invenergy stated that they intend to perform pump testing on Well 3A. Invenergy included a draft "Request for Well Investigation for the Reactivation of PUD Well 3A". We recommend that Sovereign review the pump test protocol as it becomes available.

Re-activation of Well #3A could result in the potential for vapor from contaminated groundwater to enter buildings. We recommend that Invenergy perform a vapor intrusion assessment of commercial and residential properties located in the vicinity of the site. The assessment should include baseline sampling and testing prior to activating the well with additional sampling and testing during an extended pump test and during normal operation of the well. This will establish baseline vapor intrusion data and monitor impacts of the well operation on vapor intrusion. In their response to Data Request 11-2 Invenergy states that they do not intend to perform any vapor intrusion assessments on the properties in the vicinity of Well 3A. Contingency arrangements should be presented for response actions from CREC in the event that indoor air impact to properties with buildings occurs from reactivation of Well #3A.

We recommend that Invenergy confirm that there is no hydraulic connection between the Pascoag and Harrisville Utility Districts.

We recommend that Invenergy confirm that the reactivation of well #3A for use as process water is not a concern for the 7Q10 stream flow data for the Clear River.

Based on the capacity of Well #3A, and the potential concerns related to the 7Q10 stream flow data for the Clear River, CREC should consider discharging a portion or the entirety of the spent process water into the Clear River, to recharge the river. This would likely require additional treatment and cooling at the power plant as well as piping to the Clear River or a tributary of the Clear River.

The potential building size and process and instrumentation diagram for the water treatment at the Wellhead #3A should be estimated for planning purposes in the design process.

As a contingency we recommend that Invenergy identify alternative sources of process water that can supplement the water supplied by the PUD. This may become advantageous in the event that Well #3A has mechanical problems following reactivation.

While the 200 µg/l level of MTBE in the proposed sewer discharge does not violate any current regulations, we recommend that the maximum allowable levels be set at 20 to 40 µg/l, this will reduce the chance of the discharge having a detectable odor. If the Well 3A water is treated to non-detect levels the actual levels in the sewer discharge will be well below these recommended levels. We also recommend that Invenergy have an Industrial User Permit with the Sewer Commission, this will set limits for contaminants in the discharge and protect the Sewer Commission in the event that future regulations or treatment changes require more stringent controls. RIDEM is currently reviewing the facility plan and will determine what level of contaminants are acceptable.

In their response to Data Request 10-1 Invenergy explains that no MTBE will be released with the plant emissions, any MTBE that did reach the turbines would be destroyed by the in the high temperature combustion process.

WELL 3A TREATMENT EVALUATION

The Pascoag Utility District (PWS ID# RI 1592020), created in 2001 as a successor to the Pascoag Fire District provides water service to 1,111 metered connections with a user population of approximately 3,000, in the Village of Pascoag, within the Town of Burrillville, RI.

Water is presently provided to the system from one (1), drilled bedrock water supply well (PUD Well #5) and from a connection with the neighboring Harrisville Fire District. Well #5 contributes approximately 20% of the daily user demand, with the majority of the water supply provided from the Harrisville system. The water is stored in two (2) standpipes (water tanks), a 1.5 million gallon tank on Rock Avenue and a 265,000 gallon tank located on South Main Street (opposite Lapham Farm Road). The storage tanks are sized to meet both potable water and fire protection requirements for the District.

The PUD system originally imported water from the Harrisville Fire District, however following the installation of Well #1, in 1946, the District began providing water from its own source wells. This gravel-packed well was installed in the Silver Street well field, within the building that now serves the PUD at the Maintenance Barn, initially providing a capacity of 350 gpm (or 504,000 gallons per day – gpd). Well #1 continued in service until April 1972 when it was abandoned due to elevated levels of iron and manganese (0.4 mg/l) in the water creating aesthetic problems, and clogging of the gravel packing around the well screen that reduced the apparent well capacity.

Well #2 was installed in the Silver Street well field, approximately 600 feet SE of Well #1, in 1947, to augment the system capacity. This gravel-packed well, installed within a small pump house building, had an initial capacity of approximately 150 gpm (or 216,000 gpd), however it declined over time, ultimately being redeveloped in 1989 to a capacity of approximately 125 gpm. When this well was abandoned in 2001, due to VOC contamination, it had a capacity of approximately 70 gpm (or 100,800 gpd).

Well #3 was also installed into the Silver Street well field, approximately 650 feet SE of Well #1 and 220 feet SW of Well #2, in 1970. This gravel-packed well was installed within a pump house building, providing a capacity of approximately 440 gpm (or 633,600 gpd). The well capacity had declined to approximately 220 gpm at the time it was abandoned in 2001 due to VOC contamination.

Well #3A was installed in 1999, adjacent to Well #3 in the Pump House, in response to declining capacity of Wells #2 and #3. During test programs in 2000/2001, this well demonstrated a capacity of 600 gpm (or 864,000 gpd), however the well had to be abandoned in 2001 shortly after start-up, due to VOC contamination of the well field, from an off-site source.

Following the shut-down of the Silver Street well field due to VOC contamination in 2001, the PUD has imported water from the Harrisville fire District via a 10"Ø connection in Harrisville Road, initially depending upon this source to make up 100% of the PUD user demand. Well #5, a drilled bedrock well, was constructed in 2007 on the Sugarman Property, going on-line in early 2008. This well presently provides a capacity of approximately 42 gpm (or 60,000 gpd) to lessen reliance upon the Harrisville Fire

District. The table below was obtained from the Pascoag Utility District and presents a summary of the water supply wells installed by the PUD since 1946.

Table 1: Pascoag Utility District Water Supply Well Summary

Well ID	Well #1	Well #2	Well #3	Well #3A	Well #5
Date Installed	1946	1947	1970	1999	2007
Type of Well	Gravel Pack	Gravel Pack	Gravel Pack	Gravel Pack	Bedrock
Total Well Depth	48 ft.	43'-3"	56 ft.	64 ft.	665 ft.
Casing Diameter Ø	12" x 18"	10" x 18"	8"	16"	8"
Casing Length	34 ft.	33 ft.	53 ft.	56.3 ft.	20 ft.
Screen Length	15 ft.	10 ft.	5 ft.	7 ft.	NA
Screen Diameter	12"	10"	8"	14.5"	NA
Screen Slot Size (0.001") ¹	125	125	125	140	NA
Screen Install Depth – BGS	34 – 48 ft.	33.3–43.3 ft.	52-56 ft.	56.3–64 ft.	NA
Est. Capacity	350 gpm	150-70 gpm	440-220 gpm	600 gpm	75-42 gpm
Water Quality Issues	Fe, Mn	Fe, VOC	VOC	VOC	NA
Service Status	Off-Line	Off-Line	Off-Line	Off-Line	On-Line

Note: Screen slot size is measured in thousandths of an inch (125 = 0.125")

Based on information provided by Mr. Robert Ferrari, PE of Northeast Water Solutions, consultant for the Pascoag Utility District (PUD), there would be no impact to Harrisville Utility District water supply wells if no remediation of the petroleum contamination was conducted going forward as a result of the Invenergy project failing to proceed. Since there is no water production at Well #3A, the natural groundwater flow is the Pascoag River located west and northwest followed by discharge to the Clear River. It is the opinion of Mr. Ferrari that the current petroleum contamination levels are low in the aquifer and may not be present in the surface water of the Clear River. PUD also endorses that the reactivation of Well #3A has the potential or likelihood to greatly reduce the time needed to restore groundwater quality in the former wellfield, and eliminate threats to public and private wells in the area.

For presentation purposes, **Figure 1** presents the location of Pascoag Well #3A and the Harrisville Utility District production wells. **Figure 2** presents the location of the Interim Wellhead Protection Areas (IWPA's). Even though there is an apparent overlap between the IWPA's of Pascoag Well #3A and the Harrisville Eccleston production field, available information indicates that the Clear River represents an apparent boundary condition that prevents the hydraulic connection and potential contaminant transport between the two IWPA's. This condition should be confirmed as part of the evaluation process for the proposed CREC.

Sovereign has reviewed the available historical site data in the context of how reactivating PUD Well #3A will impact the local residents and commercial businesses. The extent of the gasoline release from the former North Main Street Mobil gasoline service station, located at 24 North Main Street, was exacerbated by the operation of PUD Well #3A which drew the contaminants approximately 1,500 feet

in a northerly direction from the Source Area across an area covering approximately up to 17.4 acres (the Site).

The 17.4 acre area is based on a petroleum contamination groundwater plume analysis that was conducted immediately after the identified release in 2002. A re-evaluation of the groundwater plume impact was conducted in 2006 after four years of groundwater remediation and the impacted area was calculated to be approximately 15.9 acres. In 2012, the groundwater plume impact was calculated to be approximately 5.1 acres. **Attachment A** presents the groundwater plume impact figures that was included in a 2013 groundwater monitoring report.

Remedial Actions:

Since 2001, a variety of remedial actions have been implemented to address the gasoline release. Remedial actions have included vacuum trucks and recovery well pumps to remove free product that was found in Area 1, a soil vapor extraction system (SVE) in Area 1 to remove the contaminated soil vapors near the source area and from the Herald Square Shops parking lot, a groundwater pump-and-treat system to treat contaminated overburden and bedrock groundwater near the source area, the area between to the source area and the Herald Square Shops, and behind the Herald Square Shops in the south central section of Area 4, the removal of all underground storage tanks (UST) and UST system components and approximately 1,800 tons of gasoline contaminated soil, and an emergency carbon filtration system was connected to public well PW-3A from November of 2001 through January 11, 2002 to remove contaminants that allowed the water supply to be used for bathing. At the time of these report, groundwater was being pumped continuously from four remedial wells (BETA-1, BETA-2, MW-28BR, and MW-58BR) located at the southern end of Area 4 at a combined rate of 4 to 5 gpm. Pumped groundwater is conveyed to an activated carbon treatment system prior to discharge to the Town of Burrillville's wastewater collection system. As of July 2013, approximately 12.5 million gallons of groundwater has been pumped and treated through activated carbon filters and discharged either to the Pascoag River or to the Town of Burrillville's wastewater collection system. It was estimated that approximately 3,100 equivalent gallons of gasoline had been removed from the Site. Groundwater pumping and treatment/remediation has not occurred since that time.

Groundwater Analytical Data:

Based on groundwater sampling results from 2012, MTBE, benzene, toluene, ethylbenzene and naphthalene remain above the applicable RIDEM Groundwater Standards in several monitoring wells located throughout the site. The highest concentration of MTBE is present in well LE-15D having ranged from 340 µg/l to 970 µg/l over the four quarterly sampling events in 2012. In assessing the vertical distribution of contaminants, it is evident that higher concentrations of contaminants are found in the "deep" and "bedrock" wells throughout the Site. In addition, strong gasoline odors and visible sheens have been consistently noted in bedrock wells MW-33BR and MW-34BR. It is likely that as public well PW-3A was drawing contaminants to the north and east it was also pulling the contaminants downward toward and through bedrock. As a result, gasoline related contaminants could remain trapped in bedrock fractures.

As depicted on Figures 6A, 6B and 6C of the 2013 *Groundwater Remediation Project Summary Report, Pascoag, Rhode Island* prepared by BETA Group, since PUD Well #3A was shut down, and no longer influences groundwater flow direction, the area of groundwater impact has receded. Reactivating PUD Well #3A, will not necessarily impact "new" areas, but might result in the re-expansion of the current VOC impacted plume. In addition, any residual petroleum impacted areas may migrate under the influence of the reactivation of PUD Well #3A.

Surface Water Sampling:

In 2012, surface water samples were also collected and tested for VOCs. The results for the surface water samples collected in January of 2012 were all below laboratory detection limits. Based on the laboratory results, contaminants previously present in the groundwater proximate to the Pascoag River and in the surface water have been reduced to below current GAA Standards. GAA standards are the current drinking water standards for groundwater in Rhode Island.

Vapor Intrusion Potential:

Vapor intrusion to indoor air describes the transfer (volatilization) of chemicals from contaminated groundwater or soil into subsurface gas (vapor), the migration of the gas to the base of an overlying building, and the entry (intrusion) and dispersion of the gas within the building. Diffusion and advection are the two main mechanisms by which subsurface soil gas is transported into a building. Diffusion describes subsurface gas movement from areas of high to low concentrations due to a concentration gradient. Advection describes subsurface gas movement from higher to lower in pressure, due to factors such as forced pressure differences from building ventilation systems or temperature changes. Subsurface gases generally enter the building through foundation cracks by advection due to the indoor-outdoor building pressure differences.

Various factors influence the extent to which subsurface gases from contaminated groundwater or soil can migrate to, enter, and disperse within a building. These factors include the characteristics of the soil through which the gases will flow (e.g., its porosity and moisture content), the distance between the groundwater surface and the building, the nature of the structure itself (e.g. size, intact or cracked foundation, active or passive ventilation), and properties of the chemical.

To evaluate whether groundwater has the potential to result in unacceptable indoor air concentrations to exposed occupants of the building, U.S. EPA developed a vapor intrusion screening level (VISL) calculator. Using various conservative assumptions, the calculator can identify a groundwater concentration of an individual constituent below which an indoor air concentration of health concern in an overlying building is not likely to occur through vapor intrusion. Generally, at properties where subsurface concentrations of vapor-forming chemicals (e.g., concentrations in groundwater) fall below the applicable VISL, no further action or study is warranted, as long as site and exposure conditions are consistent with the assumptions of the model. Exceeding a VISL generally suggests that further evaluation of the vapor intrusion pathway is appropriate.

In 2001, in response to reports of petroleum odors, RIDEM conducted a soil vapor intrusion assessment. Volatile vapors were found to be present in three residential buildings located at 92 North Main Street, 99 North Main Street and at Bradford Manor. On September 28, 2001 volatile vapors measured at 92 North Main Street were between two to three parts per million (ppm) in a sump pump pit located in the basement. The sump pump pit was filled in and subsequent testing indicated that volatile vapors were not present. Volatile vapors were also measured at Bradford Court at concentrations between two to three ppm on November 13, 2001. Subsequent testing indicated that elevated volatile vapor concentrations were not present at Bradford Court after the initial reading. Volatile vapors were detected at 99 North Main Street at concentrations between two to three ppm and a vapor recovery system was placed into operation until it was removed by the property owner in April of 2002. Indoor air laboratory analytical data was not located during Sovereigns file review.

In 2006, approximately four years after PUD well #3A was shut down, an additional soil vapor intrusion assessment was performed and involved the installation and sampling of eight exterior soil vapor points located around residential properties downgradient of the MTBE source area (VP-4, VP-5, VP-21, VP-22, VP-25, VP-26, VP-27 and VP-60). The assessment was performed using protocol developed by the United States Environmental Protection Agency (EPA). Vapor samples were collected in tedlar bags and submitted for laboratory analysis via EPA methodology TO-15 and 8260B. Vapor points VP-4, VP-21, VP-5 and VP-22 (analyzed via TO-15 but only benzene, toluene, ethyl benzene and xylenes and MTBE were reported), had detections above the laboratory detection limit of all reported analytes (i.e. - MTBE, benzene, toluene, ethyl benzene and xylenes). The concentration of each analyte was as follows: MTBE ranged from 5.8 to 10 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), benzene ranged from 11 to 67 $\mu\text{g}/\text{m}^3$, toluene ranged from 39 to 83 $\mu\text{g}/\text{m}^3$, ethyl benzene ranged from 9.7 to 13 $\mu\text{g}/\text{m}^3$, and total xylenes ranged from 33 to 46 $\mu\text{g}/\text{m}^3$. Please note that the units $\mu\text{g}/\text{m}^3$ is a measurement of chemical mass in a cubic meter of air.

Vapor points VP-25, VP-26, VP-27 and VP-60 were analyzed by EPA Method 8260B, with the reporting unit of $\mu\text{g}/\text{L}$, which is a measurement used when reporting the concentration in a water sample in parts per billion (ppb). No VOCs were detected above the laboratory reporting limits.

Based on the information presented above, the groundwater data from 2012, and improved sampling procedures and techniques, the potential for vapor intrusion exists and might be influenced by the reactivation of PUD Well #3A when pumped at full capacity. The assessment completed in 2006 documents low level VOCs present in soil gas, but the assessment has limitations. For instance, the assessment was completed after PUD Well #3A was shut down, and therefore does not provide data that can be correlated to the proposed pumping conditions. To better understand the potential vapor intrusion risk, Sovereign recommends that vapor assessment be completed (see recommendations below). Contingency arrangements should be presented for response actions from CREC in the event that indoor air impact to properties with buildings occurs from reactivation of Well #3A.

PUD Well #3A 2005 Pump Test:

Pump tests completed on PUD Well #3A document that MTBE concentrations increase as the pump rate increases. In 2005, during a pump test completed by RIDEM, PUD and the University of Rhode Island's Department of Geosciences this increasing MTBE trend was observed. PUD Well #3A was pumped

initially at a rate of 240 GPM and the MTBE concentration reached 43 µg/l. The pumping rate was decreased to 150 GPM on April 19, which resulted in a decrease in the MTBE concentration to 35 µg/l. Laboratory analysis documented that MTBE and TAME were the only VOC-type contaminants that were detected at the pumping wellhead which indicated that these contaminants have moved ahead of other contaminants, such as benzene, toluene, ethylbenzene, and xylenes – total (BTEX). It was noted that the duration of this pump test was insufficient to come to a definite conclusion of the long-term MTBE concentration at the wellhead and that long-term trends in BTEX concentrations could not be determined.

Pursuant to Invenergy Thermal Development LLC's Responses to the Town of Burrillville's 5th and 8th Set of Data Request, Responses 5-3 and 8-1, Pare Engineering is designing the treatment facility that is proposed to be installed at PUD Well #3A. A basic Activated Carbon System Process Flow Diagram was provided and it depicts that the system will consist of two activated carbon vessels (capable of handling 700 gpm), a 30,000-gallon treated water storage tank, a 30,000-gallon backwash tank, pumps, sample ports and flow valves. Specific details on the treatment system were not provided, such as actual GAC vessel size, number of GAC vessels, resonating time, carbon breakthrough calculations, contingency for fouling due to metals, or a contingency for drawing in non-aqueous phase liquids that could be liberated from the bedrock due to long term pumping and a maximum pumping rate of 700 gpm.

In general, GAC is an effective media to remove MTBE as well as BTEX from groundwater. GAC relies on an adsorption process that transfers the contaminants from groundwater to the GAC. Contaminants will partition from the water to the GAC until it reaches the saturation point for the specific contaminant. However, multi-contaminants can affect the adsorption capacity of the carbon, and if naturally occurring minerals or metals, such as iron or manganese, are present in the groundwater, then the GAC may have to be backwashed or replaced more frequently to prevent backpressure.

In order to design a treatment system, Invenergy will need to complete a pump test and collect representative groundwater samples. The pump test should be conducted at an appropriate flow rate and duration, representative of the proposed withdrawal rates for the Clear River Energy Center (CREC) project, until the stabilization of contaminants of concern, which will be drawn from the source area, is achieved. Upon achieving stabilization of the contaminants of concern, groundwater samples should be collected for metals, VOCs (by drinking water analysis EPA Method 524.1), gasoline oxygenates and TPH. Upon receipt and review of this analytical data, a treatment system can be designed and the adequacy of the treatment system can be reviewed.

The potential building size and process and instrumentation diagram for the water treatment at the Wellhead #3A should be estimated for planning purposes in the design process.

Clear River Stream Flow

CREC should verify that the reactivation of Well #3A for use as process water at the proposed facility will not adversely affect the streamflow of the Clear River. The lowest flow conditions in a stream or river is based on the 7Q10 flow. The definition of 7Q10 is, the lowest average discharge over a period of one week, 7 days, with a recurrence interval of 10 years.

CREC should confirm that the reactivation of well #3A for use as process water is not a concern for the 7Q10 stream flow data for the Clear River.

CREC should consider discharging a portion or the entirety of the spent process water into the Clear River. This would require treatment not only at the wellhead, but also potentially at the power plant prior to discharge to the Clear River. Although another stage of treatment would be required, it is a more sustainable solution that may be potentially beneficial for the Clear River. The potential treatment area at the CREC should be estimated for planning purposes in the design process.

Recommendations:

- It should be confirmed that there is not a hydraulic connection between the water sources for the Pascoag and Harrisville Utility Districts. In the event that the CREC project does not proceed, it would be beneficial to demonstrate that the residual contamination related to the petroleum release in Pascoag will not impact the water supply sources in Harrisville. The Harrisville Utility District is currently providing 85% of the water for the Pascoag Utility District.
- Prior to reactivating PUD Well #3A, which has been shown to draw the contaminants approximately 1,500 feet in a northerly direction from the Source Area across an area covering as much as 20 acres, additional data should be collected to be protective of human health and the environment. A pump test should be conducted at an appropriate flow rate and duration until the stabilization of contaminants of concern is achieved. During this pump test, water samples should be collected from the PUD Well #3A, select overburden and bedrock wells located throughout the Site, and the Pascoag River. All samples should be submitted for laboratory analysis of total petroleum hydrocarbon, VOCs and gasoline oxygenates. This data will assist in monitoring local conditions for vapor intrusion potential and to monitor for plume migration.
- To be protective of human health, a vapor intrusion assessment of commercial and residential properties located within Site should be conducted. Through pump testing of PUD Well #3A, it has been shown that when the well is operational, the groundwater flow direction shifts toward PUD Well #3A. This results in an expanding VOC impacted groundwater plume underlying a larger area, which includes numerous residential properties. The impact of operating PUD Well #3A should be evaluated by collecting baseline vapor intrusion data (i.e. – TO-15 and APH) prior to utilizing PUD Well #3A as a water source for the proposed Clear River Energy Center, during a pump test, and during continued operation until the effects of the shifting VOC impacted plume and the potential off-gassing from the migrating VOC impacted groundwater plume are well understood. Sub-slab soil vapor (and indoor air samples if needed) should be collected utilizing laboratory supplied SUMMA canisters and submitted for laboratory analysis TO-15 and APH.

If a pump test is not conducted for an adequate duration prior to reactivating PUD Well #3A, a vapor intrusion assessment plan should be designed and implemented prior to the reactivation of PUD Well #3A. An example of this might include the collection of baseline indoor air or sub-slab soil gas samples prior to reactivating PUD Well #3A. Upon reactivating PUD Well #3A,

continued air monitoring should be conducted until aquifer and contaminant stabilization has been achieved and the seasonal effect on the concentration of VOCs is well understood.

Contingency arrangements should be presented for response actions from CREC in the event that indoor air impact to properties with buildings occurs from reactivation of Well #3A.

- Per Invenergy Thermal Development LLC's Responses to the Town of Burrillville's 5th and 8th Set of Data Request, Responses 5-3 and 8-1, Pare Engineering is designing the treatment facility that is proposed to be installed at PUD Well #3A and it will consist of two activated carbon vessels. Specific details on the treatment system were not provided. Based on the 2008 *Design and Cost Estimate For Groundwater Treatment System, Pascoag Water Supply Well 3A, Burrillville, Rhode Island*, prepared by GZA GeoEnvironmental, Inc., an assessment was completed to design, build and operate a treatment system for the PUD Well #3A to remove gasoline constituents to below laboratory detection limits. It was assumed that the well would pump at a rate of 500 GPM for 12 hours per day, with a total daily volume of 360,000 gpd. GZA determined 4,400 pounds of carbon would be required per day (1,606,000 pounds per year) to effectively remove the known VOC and gasoline oxygenate contaminants. The approximate 2009 cost to operate the system per year for the first six years was estimated at \$2,875,000.00. GZA estimated that each additional year would cost approximately \$1,597,000.00. Per Invenergy Thermal Development LLC's Responses to the Town of Burrillville's 6th Set of Data Request, Response 6-11, it is stated that PUD will own and operate the proposed treatment system.

A revised study should be completed to determine treatment system requirements based on current conditions, conditions when the well is pumping at full capacity resulting in the impacted VOC plume migration toward PUD Well #3A, and the feasibility of either PUD or Invenergy Thermal Development LLC (Invenergy) to fund the construction and ongoing operation of this system. The revised study should demonstrate that any petroleum constituents would be removed from the water prior to conveyance to the CREC facility for use as process water. The performance criteria for removed from the water should be below laboratory quantification limits. A dual train system with at least 3 GAC units on each train should be considered for redundancy and performance.

The potential building size and process and instrumentation diagram for the water treatment at the Wellhead #3A should be estimated for planning purposes in the design process.

- Confirm that the reactivation of well #3A for use as process water is not a concern for the 7Q10 stream flow data for the Clear River.
- Based on the capacity of Well #3A, and the potential concerns related to the 7Q10 stream flow data for the Clear River, CREC should consider discharging a portion or the entirety of the spent process water into the Clear River.

- As a contingency, additional water sources beyond the Pascoag Utility District should be considered to supplement the process water demand. This may become advantageous in the event that Well #3A has mechanical problems following reactivation.

MTBE IMPACTS ON BURRILLVILLE SEWER TREATMENT

The EFSB application includes a summary of the discharge parameters anticipated, the projected maximum discharge parameter for MTBE is 200 µg/l. Table 6.2-2 from the EFSB application summarizes the well water and wastewater discharge parameters. CDR Maguire reviewed the impacts of the MTBE on the operation of the sewer treatment plant and on the discharge from the sewer treatment plant to the Clear River.

Background. Clear River Energy Center indicates that the water to be used in the process of producing electricity will be obtained from the Pascoag Utility District. The well that will produce the water is contaminated with Methyl-Tertiary-Butyl-Ether (MTBE) is proposed to be treated to a maximum concentration of 55 µg/l prior to delivery to the power plant.

As part of the evaluation for their submittal, pre and post concentrations of 32 parameters have been summarized in Table 6.2-2. Table 6.2-2 also states the applicability of regulations to those parameters. As seen in Table 6.2-2 the projected concentration in the wastestream is different than in the water from the well. This is attributed to reactions that occur during the high purity treatment process and in the production of the energy.

Invenergy states in the EFSB permit application that the MTBE levels in the sewer discharge will be below 200 µg/l at a temperature below 140 degrees F. The major questions are will the discharge be harmful to the operation of the plant and will the quality of the discharge affect the Town's wastewater discharge permit.

MTBE is a gasoline additive that was designed to maintain the octane (power) of gasoline, reduce engine knocking and reduce tailpipe emissions. It was designed to be a soluble additive; that is, it maintains a homogeneous mixture without additional agitation. This trait also makes it difficult to remove by a normally efficient treatment process.

Research

Plant. It is unclear if MTBE at the concentrations presented will cause any problems at the plant. Much of the research discovered has contaminated sites reducing the MTBE level down to 200 µg/l with no further treatment and this is the proposed discharge concentration from the Clear River Energy Center plant.

Discharge limits. Since MTBE is not currently regulated, there will not be an immediate concern with the discharge of any residual MTBE in the discharge from the plant.

Odors. The odor threshold for a chemical is the concentration at which it can be perceived. These numbers vary from chemical to chemical and person to person. The Fact Sheet for the State of New Hampshire states:

The MtBE odor and taste thresholds from several studies fall within the range of 20-40 µg/l, identified by EPA as an approximate threshold for aesthetic effects. EPA states that this range can be used as advisory guidance to help ensure consumer acceptance of the taste and odor of MtBE in drinking water. The State secondary standard of 20 µg/l for MtBE is based on the lower

end of EPA's recommended odor and taste threshold range. This value is anticipated to provide protection for most individuals.

Since the proposed discharge from Clear River Energy is 200 µg/l, it is highly likely that the discharge will have a detectable odor of MTBE to most if not all people.

Impact of future change at plant could be significant. It is a complete unknown as to whether or not EPA decides to regulate MTBE in the future. According to an unmaintained page (last updated Feb. 20, 2016) on the EPA website:

"EPA is continuing to study both the potential health effects and the occurrence of MTBE, and it is on a list of contaminants (Contaminant Candidate List) for which EPA is considering setting health standards. As a means of gathering occurrence information, beginning in 2001, EPA will require all large drinking water systems and a representative sample of small systems to monitor and report the presence of MTBE (Unregulated Contaminant Monitoring Regulation)."

To protect the Town from this occurrence, we suggest adding language to the IUP that allows the Town to change the discharge requirements if the current concentrations are detrimental to the treatment plant process or to the meeting the discharge limits in the permit.

Impact of future regulation change. Currently the discharge from the plant is regulated by the RIDEM and USEPA through the National Pollution Discharge Elimination System (NPDES) program. Under this program, the EPA has developed a list of Priority Pollutants that are regulated. The list is included with this memorandum. The priority pollutant list is a dynamic list of elements and compounds that the EPA deems as detrimental to the receiving waterways. The list is dynamic and changes over time as new pollutants are developed or discovered.

Currently MTBE is not a regulated constituent under the program. However, the nature of the list is that it is dynamic. Because MTBE is not currently on the list, which does not mean that it won't be regulated at some point in the future.

Temperature. It should be noted that the proposed temperature of the discharge (140 degrees F) is greater than what is typically seen (50-60 degrees) but is less than applicable discharge standards. Given the average daily flow of 96,000 gpd (at 140 degrees) and the average daily flow of the plant at 887,500 (at 53 degrees), the combined temperature at the plant would be approximately 61 degrees. Please note that this calculation does not include any heat loss through the 4 miles of the collection system.

Recommendations

Based on the fact that the full effects of MTBE on the treatment plant and the discharge are not fully known, we recommend that the Town develop a method for protecting itself. The typical method for establishing this kind of protection is through the development of an Industrial Users Permit (IUP). An IUP will allow the Town set enforceable limits on the discharge from the Clear River Energy Center and also protect itself in the future if the discharges affects the current processes at the wastewater plant and regulations or treatment technologies change.

Mr. Michael Wood
June 16, 2016
Page 15 of 15

Many options are available for the development of an IUP. For example, the USEPA has a template available that we have included in Attachment B. Other communities and RIDEM likely have templates available for the Town to utilize as well.

For the elimination of possible odors, we recommend that a maximum level of MTBE in the discharge be capped at 20 to 40 $\mu\text{g/l}$.

We appreciate the opportunity to assist the Town of Burrillville with these issues. If you have questions please contact me at your convenience

Very truly yours,

CDR MAGUIRE INC.

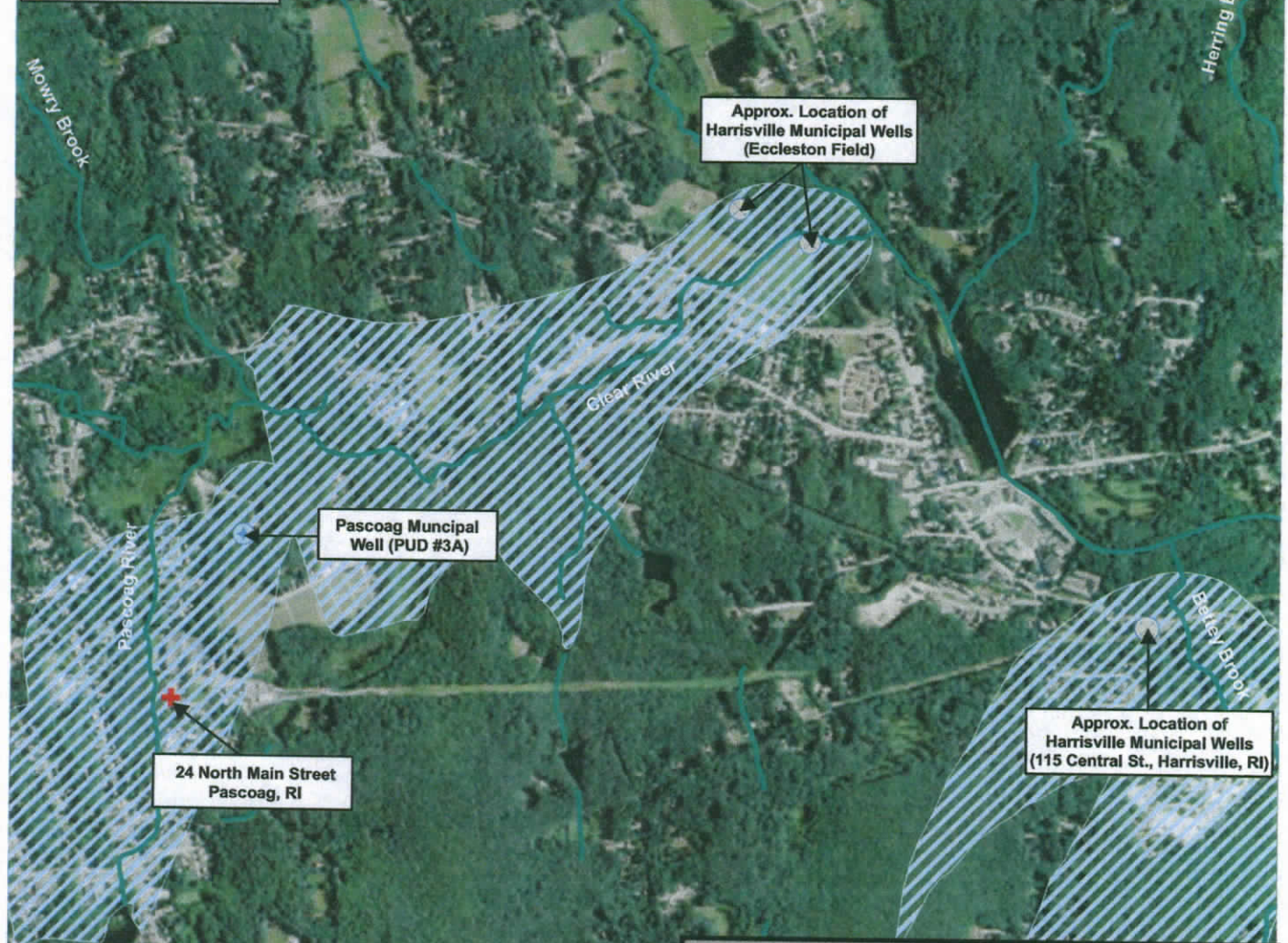
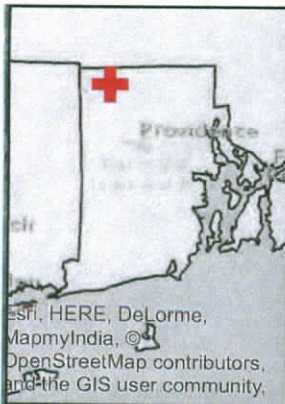
A handwritten signature in blue ink, appearing to read 'J. A. Jackson'.

James A Jackson, P.E.
Project Manager



Figures
Attachment A
Attachment B

FIGURES





Legend

-  Rivers and Streams
-  Community Wellhead Protection Area (WHPA)

A wellhead protection area (WHPA) is the portion of an aquifer through which groundwater moves to a well.


Community Well - serves year-round residents; at least 15 service connections or at least 25 individuals.

Stream Data from RI GIS Online 6/10/2016

Originator: RI Department of Environmental Management Office of Water Resources.

FIGURE 2 - Pascoag and Harrisville Wellhead Protection Areas

24 North Main Street
Burrillville, RI 02859

 Latitude: 41°57'35.71"N
Longitude: 71°42'5.65"W

0 0.1 0.2 0.4 0.6 0.8
Miles



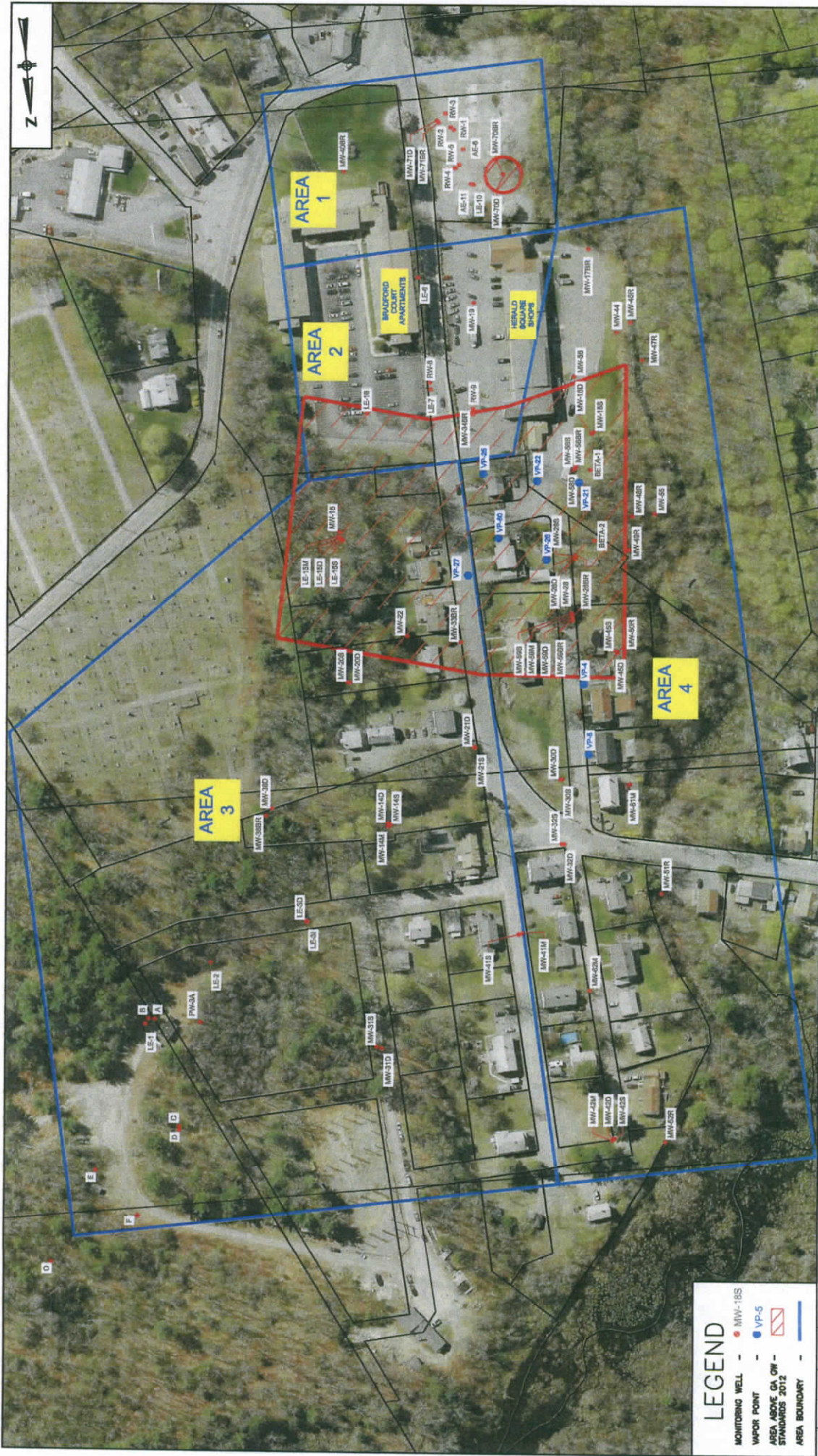
SOVEREIGN CONSULTING INC.

16 CHESTNUT STREET
FOXBOROUGH, MA 02035

Tel: 508-339-3200 Fax: 508-339-3248

www.sovcon.com

ATTACHMENT A



LEGEND

- MONITORING WELL - ● MW-100
- VAPOR POINT - ● VP-1
- AREA ABOVE GROUND WATER STANDARDS 2012 - [Red circle with diagonal line]
- AREA BOUNDARY - [Blue line]

FIGURE 6C

APPROXIMATE AREA ABOVE RIDEN CA
GROUNDWATER OBJECTIVES 2012
PASCO AG, RI

1" = 140'

0 70 140 210

FOOT

BETA Group, Inc.
Engineers, Scientists, Planners
Lincoln, RI 02865
401.333.2382
WWW.BETAGROUP.COM

DATE: 10/1/2012
DRAWN BY: [blank]
CHECKED BY: [blank]
APPROVED BY: [blank]

ATTACHMENT B

APPENDIX C

Sample Permit Application Form

Disclaimer

The U.S. Environmental Protection Agency (EPA), Office of Wastewater Management, Water Permits Division has prepared this sample permit application as a guide for Control Authorities in developing a permit application form. The Control Authority is not required to use this permit application form and may develop either its own form or choose to modify the sample form to reflect specific conditions at the publicly owned treatment works (POTW) and requirements of state and local law. For the Control Authority choosing to use a modified version of the sample application, the EPA sample permit application provides, as an aid to the Control Authority, blank spaces or brackets throughout the application. These identify areas in which additions and changes to the sample application might be needed to address the circumstances at a POTW. The sample has additional bracketed notes that further explain issues the Control Authority might wish to consider when developing its permit application form.

APPENDIX C. SAMPLE PERMIT APPLICATION FORM

Note: Please read all attached instructions prior to completing this application.

SECTION A – GENERAL INFORMATION

1.	Facility Name:		
	a. Operator Name:		
	b. Is the operator identified in 1.a., the owner of the facility?	Yes	No
	If no, provide the name and address of the operator and submit a copy of the contract and/or other documents indicating the operator's scope of responsibility for the facility.		
2.	Facility Address:		
	Street:		
	City:	State:	Zip:
3.	Business Mailing Address:		
	Street or P.O. Box:		
	City:	State:	Zip:
4.	Designated signatory authority of the facility:		
	[Attach similar information for each authorized representative]		
	Name:		
	Title:		
	Address:		
	City:	State:	Zip:
	Phone #		
5.	Designated facility contact:		
	Name:		
	Title:		
	Phone #		
6.	<i>[Note: This question might not be applicable to all pretreatment programs. The following question is only applicable to those programs implementing this optional streamlining provision.]</i> Do you wish to be considered for regulation under a general permit, if the Control Authority considers it to be appropriate? If so, you must file a request for coverage under a general control mechanism. [POTW's should include list of available general control mechanisms]	Yes	No

SECTION B – BUSINESS ACTIVITY

1. If your facility employs or will be employing processes in any of the industrial categories or business activities listed below (regardless of whether they generate wastewater, waste sludge, or hazardous wastes), place a check beside the category of business activity (check all that apply).

Industrial Categories

- | | |
|--------------------------|---|
| <input type="checkbox"/> | Aluminum Forming |
| <input type="checkbox"/> | Asbestos Manufacturing |
| <input type="checkbox"/> | Battery Manufacturing |
| <input type="checkbox"/> | Can Making |
| <input type="checkbox"/> | Canned and Preserved Fruit and Vegetable Processing |
| <input type="checkbox"/> | Canned and Preserved Seafood |
| <input type="checkbox"/> | Carbon Black Manufacturing |
| <input type="checkbox"/> | Cement Manufacturing |
| <input type="checkbox"/> | Centralized Waste Treatment |
| <input type="checkbox"/> | Coal Mining |
| <input type="checkbox"/> | Coil Coating |
| <input type="checkbox"/> | Concentrated Animal Feeding Operation and Feedlots |
| <input type="checkbox"/> | Concentration Aquatic Animal Production |
| <input type="checkbox"/> | Copper Forming |
| <input type="checkbox"/> | Dairy Product Processing or Manufacturing |
| <input type="checkbox"/> | Electric and Electronic Components Manufacturing |
| <input type="checkbox"/> | Electroplating |
| <input type="checkbox"/> | Explosives Manufacturing |
| <input type="checkbox"/> | Fertilizer Manufacturing |
| <input type="checkbox"/> | Ferroalloy Manufacturing |
| <input type="checkbox"/> | Foundries (Metal Molding and Casting) |
| <input type="checkbox"/> | Glass Manufacturing |
| <input type="checkbox"/> | Grain Mills |
| <input type="checkbox"/> | Gum and Wood Chemicals Manufacturing |
| <input type="checkbox"/> | Hospital |
| <input type="checkbox"/> | Ink Formulation |
| <input type="checkbox"/> | Inorganic Chemicals |
| <input type="checkbox"/> | Iron and Steel |
| <input type="checkbox"/> | Landfill |
| <input type="checkbox"/> | Leather Tanning and Finishing |
| <input type="checkbox"/> | Meat and Poultry Products |
| <input type="checkbox"/> | Metal Finishing |
| <input type="checkbox"/> | Metal Products and Machinery |
| <input type="checkbox"/> | Mineral Mining and Processing |
| <input type="checkbox"/> | Nonferrous Metals Forming |
| <input type="checkbox"/> | Nonferrous Metals Manufacturing |
| <input type="checkbox"/> | Oil and Gas Extraction |
| <input type="checkbox"/> | Ore Mining |
| <input type="checkbox"/> | Organic Chemicals Manufacturing |
| <input type="checkbox"/> | Paint and Ink Formulating |

<input type="checkbox"/>	Paving and Roofing Manufacturing
<input type="checkbox"/>	Pesticides Chemical Manufacturing, Formulating, and/or Packaging
<input type="checkbox"/>	Petroleum Refining
<input type="checkbox"/>	Pharmaceutical Manufacturing
<input type="checkbox"/>	Phosphate Manufacturing
<input type="checkbox"/>	Photographic Processing
<input type="checkbox"/>	Plastic and Synthetic Materials Manufacturing
<input type="checkbox"/>	Porcelain Enameling
<input type="checkbox"/>	Printed Circuit Board Manufacturing
<input type="checkbox"/>	Pulp, Paper, and Fiberboard Manufacturing
<input type="checkbox"/>	Rubber Manufacturing
<input type="checkbox"/>	Soap and Detergent Manufacturing
<input type="checkbox"/>	Steam Electric Power Generating
<input type="checkbox"/>	Sugar Processing
<input type="checkbox"/>	Textile Mills
<input type="checkbox"/>	Timber Products
<input type="checkbox"/>	Transportation Equipment Cleaning
<input type="checkbox"/>	Waste Combustors
<input type="checkbox"/>	Other (Describe)

2. Give a brief description of all operations at this facility including primary products or services (attach additional sheets if necessary):

3. Indicate applicable North American Industry Classification System (NAICS) for all processes:

a.		
b.		
c.		
d.		
e.		

4. Production Rate

Product	Past Calendar Year Amounts per Day (Daily Units)		Estimate This Calendar Year Amounts Per Day (Daily Units)	
	Average	Maximum	Average	Maximum

5. For production-based categorical IUs only:
What is the facility's long-term average categorical production rate for the past 5 years?

SECTION C – WATER SUPPLY

1.	Water Sources: (Check as many as are applicable.)		
	<input type="checkbox"/>	Private Well	
	<input type="checkbox"/>	Surface Water	
	<input type="checkbox"/>	Municipal Water Utility (Specify City):	
	<input type="checkbox"/>	Other (Specify):	
2.	Name (as listed on the water bill):		
	Street:		
	City:	State:	Zip:
3.	Water service account number:		
4.	List average water usage on premises: [new facilities may estimate]		
	Type	Average Water Usage (GPD)	Indicate Estimated (E) or Measured (M)
a.	Contact cooling water		
b.	Non-contact cooling water		
c.	Boiler feeding		
d.	Process		
e.	Sanitary		
f.	Air pollution control		
g.	Contained in product		
h.	Plant and equipment washdown		
i.	Irrigation and lawn watering		
j.	Other		
k.	Total of a through j		

SECTION D – SEWER INFORMATION

[illegible]

SECTION E – WASTEWATER DISCHARGE INFORMATION

1.	Does (or will) this facility discharge any wastewater other than from restrooms to the City sewer?						
	Yes	If the answer to this question is "yes," complete the remainder of the application.					
	No	If the answer to this question is "no," skip to Section I.					
2.	Provide the following information on wastewater flow rate. [New facilities may estimate.]						
	a. Hours/day discharged (e.g., 8 hours/day)						
	M	T	W	TH	F	SAT	SUN
	b. Hours of discharge (e.g., 9 a.m. to 5 p.m.)						
	M	T	W	TH	F	SAT	SUN
	c. Peak hourly flow rate			(GPD)			
	d. Maximum daily flow rate			(GPD)			
	e. Annual daily average			(GPD)			
3.	If batch discharge occurs or will occur, indicate: [New facilities may estimate.]						
	a. Number of batch discharges			(per day)			
	b. Average discharge per batch			(GPD)			
	c. Time of batch discharges			(days of week)		(hours of day)	
	d. Flow rate			(gallons per minute)			
	e. Percent of total discharge						

4. Schematic Flow Diagram – For each major activity in which wastewater is or will be generated, draw a diagram of the **flow of materials, products, water, and wastewater** from the start of the activity to its completion, showing all unit processes. Indicate which processes use water and which generate wastestreams. Include the average daily volume and maximum daily volume of each wastestream [new facilities may estimate]. If estimates are used for flow data this **must** be indicated. **Number each unit process** having wastewater discharges to the community sewer. Use these numbers when showing this unit processes in the building layout in Section H.

- [illegible]

- [illegible]

- | | | Yes | No | N/A |
|---------|--------------------|-----|----|-----|
| Current | Flow Metering | | | |
| | Sampling Equipment | | | |
| Planned | Flow Metering | | | |
| | Sampling Equipment | | | |

[illegible]

- | | |
|--|---------------------------|
| | Yes |
| | No, (skip to Question 10) |

9.	Briefly describe these changes and their effects on the wastewater volume and characteristics: (attach additional sheets if needed).			
10.	Are any recycling or reclamation system in use or planned?			
	Yes			
	No (skip to Question 12)			
11.	Briefly describe recovery process, substance recovered, percent recovered, and the concentration in the spent solution. Submit a flow diagram for each process (attach additional sheets if needed):			
12.	<p><i>[Note: This question might not be applicable to all pretreatment programs. The following question is only applicable to those programs implementing this optional streamlining provision.]</i></p> <p>As allowed at 40 CFR 403.6(c)(5) when the limits in a categorical Pretreatment Standard are expressed only in terms of pollutant concentration, an Industrial User may request that the Control Authority convert the limits to equivalent mass limits. Do you anticipate that you will make this request?</p>	<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> </table>	Yes	No
Yes	No			
13.	<p><i>[Note: This question might not be applicable to all pretreatment programs. The following question is only applicable to those programs implementing this optional streamlining provision.]</i></p> <p>As allowed at 40 CFR 403.6(c)(6), an Industrial User subject to the mass limits of categorical Pretreatment Standards to 40 CFR Parts 414, 419, and/or 455 may request that the Control Authority convert the mass limits to equivalent concentration limits. Do you anticipate that you will make this request?</p>	<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> </table>	Yes	No
Yes	No			

SECTION F – CHARACTERISTICS OF DISCHARGE

All current industrial users are required to submit monitoring data on all pollutants that are regulated specific to each process. Use the tables provided in this section to report the analytical results. **Do not leave blanks.** For all other (nonregulated) pollutants, indicate whether the pollutant is known to be present (P), suspected to be present (S), or known not to be present (O), by placing the appropriate letter in the column for average reported values. Indicate on either the top of each table, or on a separate sheet, if necessary, the sample location and type of analysis used. Be sure methods conform to 40 CFR Part 136; if they do not, indicate what method was used.

New dischargers should use the table to indicate what pollutants will be present or are suspected to be present in proposed wastestreams by placing a P (expected to be present), S (may be present), or O (will not be present) under the average reported values.

Pollutant	Detection Level Used	Maximum Daily Value		Average of Analyses		Number of Analyses	Units	
		Conc.	Mass	Conc.	Mass		Conc.	Mass
Acenaphthene								
Acrolein								
Acrylonitrile								
Benzene								
Benzidine								
Carbon Tetrachloride								
Chlorobenzene								
1,2,4-Trichlorobenzene								
Hexachlorobenzene								
1,2-Dichloroethane								
1,1,1-Trichloroethane								
1,1,2,2-Tetrachloroethane								
Chloroethane								
Bis(2-Chloroethyl)ether								
17 Bis (chloro methyl) ether								
2-Chloroethyl vinyl Ether								
2-Chloronaphthalene								
2,4,6-Trichlorophenol								
Parachlorometa cresol								
Chloroform								
2-Chlorophenol								
1,2-Dichlorobenzene								
1,3-Dichlorobenzene								
1,4-Dichlorobenzene								
3,3'-Dichlorobenzidine								
1,1-Dichloroethylene								
1,2-Trans-Dichloroethylene								
2,4-Dichlorophenol								
1,2-Dichloropropane								
1,2-Dichloropropylene								
1,3-Dichloropropylene								
2,4-Dimethylphenol								
2,4-Dinitrotoluene								
2,6-Dinitrotoluene								
1,2-Diphenylhydrazine								
Ethylbenzene								
Fluoranthene								

Pollutant	Detection Level Used	Maximum Daily Value		Average of Analyses		Number of Analyses	Units	
		Conc.	Mass	Conc.	Mass		Conc.	Mass
4-Chlorophenyl Phenyl Ether								
4-Bromophenyl Phenyl Ether								
Bis(2-Chloroethyl)ether								
Bis(2-chloroethoxy)methane								
Methylene Chloride								
Methyl Chloride								
Bromoform								
Dichlorobromomethane								
Chlorodibromomethane								
Hexachlorobutadiene								
Hexachlorocyclopentadiene								
Isophorone								
Naphthalene								
Nitrobenzene								
Nitrophenol								
2-Nitrophenol								
4-Nitrophenol								
2,4-Dinitrophenol								
4,6-Dinitro-O-Cresol								
N-Nitrosodimethylamine								
N-Nitrosodiphenylamine								
N-Nitrosodi-N-Propylamine								
Pentachlorophenol								
Phenol								
Bis(2-ethylhexyl)phthalate								
Butylbenzyl Phthalate								
Di-N-Butyl Phthalate								
Di-N-Octyl Phthalate								
Diethyl Phthalate								
Dimethyl Phthalate								
Benzo(a)anthracene								
Benzo(a)pyrene								
3,4-Benzofluoranthene								
Benzo(k)fluoranthene								
Chrysene								
Acenaphthylene								
Anthracene								
Benzo(ghi)perylene								
Fluorene								
Phenanthrene								
Dibenzo(a,h)anthracene								
Indeno(1,2,3-cd)pyrene								
Pyrene								
Tetrachloroethylene								
Toluene								
Trichloroethylene								
Vinyl Chloride								
Aldrin								
Dieldrin								
Chlordane								
4,4'-DDT								
4,4'-DDE								

Pollutant	Detection Level Used	Maximum Daily Value		Average of Analyses		Number of Analyses	Units	
		Conc.	Mass	Conc.	Mass		Conc.	Mass
4,4'-DDD								
Alpha-Endosulfan								
Beta-Endosulfan								
Endosulfan Sulfate								
Endrin								
Endrin Aldehyde								
Heptachlor								
Heptachlor Epoxide								
Alpha-BHC								
Beta-BHC								
Gamma-BHC								
Delta-BHC								
PCB-1242								
PCB-1254								
PCB-1221								
PCB-1232								
PCB-1248								
PCB-1260								
PCB-1016								
Toxaphene								
(TCDD)								
Asbestos								
Acidity								
Alkalinity								
Bacteria								
BOD ₅								
Chloride								
Chlorine								
Fluoride								
Hardness								
Magnesium								
NH ₃ -N								
Oil and Grease								
TSS								
TOC								
Kjeldahl N								
Nitrate N								
Nitrite N								
Organic N								
Orthophosphate P								
Phosphorous								
Sodium								
Specific Conductivity								
Sulfate (SO ₄)								
Sulfide (S)								
Sulfite (SO ₃)								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Chromium								

Pollutant	Detection Level Used	Maximum Daily Value		Average of Analyses		Number of Analyses	Units	
		Conc.	Mass	Conc.	Mass		Conc.	Mass
Copper								
Cyanide								
Lead								
Mercury								
Nickel								
Selenium								
Silver								
Thallium								
Zinc								
Any additional pollutants regulated by state or local laws:								

[Note: This question might not be applicable to all pretreatment programs. The following question is only applicable to those programs implementing this optional streamlining provision.]

Yes	No
-----	----

Do you anticipate requesting a monitoring waiver for regulated pollutants which you believe to not be present in your process wastestream(s)?

[Note: This question might not be applicable to all pretreatment programs. The following question is only applicable to those programs implementing this optional streamlining provision.]

Yes	No
-----	----

In order to request a monitoring waiver for pollutants not present, you must provide data from at least one sampling of your facility's wastewater prior to any treatment present at your facility that is representative of all wastewater from all processes. The request of a monitoring waiver must be signed in accordance with 40 CFR 403.12(l), and include the certification statement in 40 CFR 403.6(a)(2)(ii). Do you wish to make this request?

SECTION G - TREATMENT

1.	Is any form of wastewater treatment (see list below) practiced at this facility?
	Yes
	No
2.	Is any form of wastewater treatment (or changes to an existing wastewater treatment) planned for this facility within the next three years?
	Yes, describe:
	No
3.	Treatment devices or processes used or proposed for treating wastewater or sludge (check as many as appropriate).
	<input type="checkbox"/> Air flotation
	<input type="checkbox"/> Centrifuge
	<input type="checkbox"/> Chemical precipitation
	<input type="checkbox"/> Chlorination
	<input type="checkbox"/> Cyclone
	<input type="checkbox"/> Filtration
	<input type="checkbox"/> Flow equalization
	<input type="checkbox"/> Grease or oil separation, type:
	<input type="checkbox"/> Grease trap
	<input type="checkbox"/> Grinding filter
	<input type="checkbox"/> Grit removal
	<input type="checkbox"/> Ion exchange
	<input type="checkbox"/> Neutralization, pH correction
	<input type="checkbox"/> Ozonation
	<input type="checkbox"/> Reverse osmosis
	<input type="checkbox"/> Screen
	<input type="checkbox"/> Sedimentation
	<input type="checkbox"/> Septic tank
	<input type="checkbox"/> Solvent separation
	<input type="checkbox"/> Spill protection
	<input type="checkbox"/> Sump
	<input type="checkbox"/> Rainwater diversion or storage
	<input type="checkbox"/> Biological treatment, type:
	<input type="checkbox"/> Other chemical treatment, type:
	<input type="checkbox"/> Other physical treatment, type:
	<input type="checkbox"/> Other, type:
4.	Is process wastewater mixed with nonprocess wastewater prior to the sampling point?
	Yes, describe:
	No

4.	Description Describe the pollutant loadings, flow rates, design capacity, physical size, and operating procedures of each treatment facility checked above.		
5.	Attach a process flow diagram for each existing treatment system. Include process equipment, by-products, by-product disposal method, waste and by-product volumes, and design and operating conditions.		
6.	Describe any changes in treatment or disposal methods planned or under construction for the wastewater discharge to the sanitary sewer. Please include estimated completion dates.		
7.	Do you have a treatment operator? (If Yes)	Yes	No
	Name: Title: Phone: Full time (specify hours): Part time (specify hours):		
8.	Do you have a manual on the correct operation of your treatment equipment?	Yes	No
9.	Do you have written maintenance schedule for your treatment equipment?	Yes	No

SECTION H – FACILITY OPERATIONAL CHARACTERISTICS

1. Shift Information												
Work days				Mon	Tues	Wed	Thur	Fri	Sat	Sun		
Shifts per work day												
Employees per shift				1 st								
				2 nd								
				3 rd								
Shift start and end times				1 st								
				2 nd								
				3 rd								
2. Indicate whether the business activity is:												
Continuous through the year, or												
Seasonal (circle the months of the year during which the business occurs):												
J	F	M	A	M	J	J	A	S	O	N	D	
Comments:												
3. Indicate whether the facility discharge is:												
Continuous through the year, or												
Seasonal (circle the months of the year during which the business occurs):												
J	F	M	A	M	J	J	A	S	O	N	D	
Comments:												
4. Does operation shut down for vacation, maintenance, or other reasons?												
Yes, indicate reasons and period when shutdown occurs												
No												
5. List types and amounts (mass or volume per day) of raw materials used or planned for use (attach list if needed):												

6. List types and quantity of chemicals used or planned for use (attach list if needed). Include copies of Material Safety Data Sheets (if available) for all chemicals identified.

Chemical	Quantity

7. Building Layout - Draw to scale the location of each building on the premises. Show map orientation and location of all water meters, storm drains, numbered unit processes (from schematic flow diagram), public sewers, and each facility sewer line connected to the public sewers. **Number each sewer** and show existing and proposed sampling locations.

A blueprint or drawing of the facilities showing the above items may be attached in lieu of submitting a drawing on this sheet.

SECTION I – SPILL PREVENTION

1.	Do you have chemical storage containers, bins, or ponds at your facility?	Yes	No
	If yes, please give a description of their location, contents, size, type, and frequency and method of cleaning. Also indicate in a diagram or comment on the proximity of these containers to a sewer or storm drain. Indicate if buried metal containers have cathodic protection.		
2.	Do you have floor drains in your manufacturing or chemical storage area(s)?	Yes	No
	If yes where do they discharge to?		
3.	If you have chemical storage containers, bins, or ponds in manufacturing area, could an accidental spill lead to a discharge to (check all that apply):		
	an onsite disposal system		
	public sanitary sewer system (e.g., through a floor drain)		
	storm drain		
	to ground		
	other, specify:		
	not applicable, no possible discharge to any of the above routes		
4.	Do you have an accidental spill prevention plan (ASPP) to prevent spills of chemicals or slug discharges from entering the Control Authority's collection systems?		
	Yes – [Please enclose a copy with the application.]		
	No		
	N/A, not applicable since there are no floor drains and/or the facility discharge(s) only domestic wastes.		
5.	Please describe below any previous spill events and remedial measures taken to prevent their reoccurrence.		

SECTION L – AUTHORIZED SIGNATURES

Compliance certification:

[illegible]

Authorized Representative Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name(s)_____
Title_____
Signature_____
Date_____
Phone

JUN 13 2016

PLANNING DEPARTMENT



5 Burlington Woods Drive Suite 210, Burlington MA 01803-4542

June 9, 2016
File: 195110174

Attention: Mr. Paul Bisson, Water Superintendent

Harrisville Fire District
115 Central Street
Harrisville RI 02830

Dear Mr. Bisson,

Reference: Cooling Water for the Proposed Clear River Energy Center in Burrillville

As discussed in our meeting on May 25, 2016, we are writing to provide you with some information on the use of cooling water for the proposed Clear River Energy Center planned to be sited on Wallum Lake Road, Burrillville, Rhode Island.

Project Background

Invenergy Thermal Development (Invenergy) proposes to construct and operate the Clear River Energy Center, a 1,000 MW combined-cycle electric generating facility fueled by natural gas on Wallum Lake Road, Burrillville.

Invenergy intends to construct a transmission water main from the Pascoag Utility District (PUD) water supply wells on North Main Street to supply cooling water to the facility. This water will be treated to remove contaminants which caused these wells to be disconnected from service as public drinking water supplies in 2001. The water will be used at the facility for the cooling of power production systems. A dedicated sewer pipe is also intended to be constructed to the Burrillville Wastewater Treatment Facility (WWTP) for disposal of cooling waste water.

Discussion

We understand that the Town of Burrillville has asked you to comment on any potential impacts you anticipate to the operation of Harrisville Fire District (HFD) wells during the proposed operation of the PUD water supply wells. We offer the following for consideration as your response to the Town.

The PUD water supply wells on North Main Street are located upgradient, along the Clear River, of the existing Eccleston Field Wells (Wells 5 and 6) and nearby Well 7 operated by the HFD Water Department. The Eccleston Field Wells originally came online in January 2002 and Well 7 came online in 2014, thus there is no history of the PUD Wells and the HFD Wells operating concurrently.



June 9, 2016
Mr. Paul Bisson, Water Superintendent
Page 2 of 2

Reference: Cooling Water for the Proposed Clear River Energy Center in Burrillville

During the more recent permitting of the HFD Well 7 in 2011, a groundwater model was developed and utilized to quantify any local environmental impacts during the operation of the Eccleston Field Wells and Well 7 sources. The Rhode Island Department of Environmental Management (DEM) reviewed the modeling results and, through the withdrawal permitting process, agreed with our conclusion that any potential impacts to the Clear River were acceptable during the operation of the Eccleston Field Wells and Well 7.

Our concern is that the proposed operation of the PUD wells on North Main Street would cause a draw on the Clear River which may exacerbate any currently acceptable impacts that the HFD Wells have on the Clear River. We propose that some consulting time be budgeted to allow an update to the current groundwater model. This updated model could then be used to simulate the new scenario, to include operation of the PUD water supply wells, and then quantify any potential impacts. A budget of \$15,000 should be provided by the project proponent to complete this groundwater modeling effort to determine any potential impacts to the operation of the HFD Wells.

We also suggest that Invenergy consider modifying their plan to discharge cooling water to the Burrillville WWTP. A more sustainable solution would be to treat the cooling waste water on site and construct a discharge pipe directly to the Clear River, upgradient of the HFD Wells.

Please let us know if you have any questions on this matter.

Regards,

Stantec Consulting Services Inc.

Garry McCarthy

Garry McCarthy, P.E.
Principal
Phone: (978) 577-1408
garry.mccarthy@stantec.com

c. C.C.

gm document2

JUN 13 2016

PLANNING DEPARTMENT

EXECUTIVE SUMMARY¹**Edward Pimentel, Pimentel Consulting, Inc.*****June 2016***

Invenergy Thermal Development, LLC (hereafter "Invenergy") has retained my professional land use planning and zoning consulting services, in order to evaluate and render an opinion regarding the appropriateness of constructing and operating the proposed Clear River Energy Center combined-cycle approximately 850 - 1,000 megawatts electric generating facility (hereinafter "CREC") in light of the regulatory review standards established by the State of Rhode Island and Providence Plantations Energy Facility Siting Board (hereinafter "RI EFSB"). In light of the specified regulatory charge, I have conducted a thorough analysis of the following

1. The proposed development, including associated production plan(s) and map(s);
2. The RI EFSB Application prepared by ESS Group, Inc. (hereinafter "Invenergy Application"), including referenced reports;
3. The following state and local regulatory documents: Town of Burrillville Comprehensive Plan 5-Year Update - Update Adopted 14 December 2011 (hereinafter "Comprehensive Plan"); Town of Burrillville Zoning Ordinance (hereinafter "Ordinance"); State Guide Plan Element Energy 2035 - Rhode Island State Energy Plan (hereafter "State Energy Plan"); and RI Comprehensive Planning Standards Guidance Handbook Series - Guidance Handbook No. 9 - Planning for Energy - Approved 14 January 2016 (hereinafter "Energy Guidance Handbook");
4. Materials submitted by Invenergy to the Town of Burrillville Planning Board; and
5. The subject development site and immediate neighborhood.

The purpose for the subject report is to evaluate and render a professional opinion on the "consistency" of the proposed development with the applicable siting guideline goals and objectives of the Comprehensive Plan and Ordinance and to evaluate neighborhood land use.

After reviewing all the relevant information and documents, it is the professional opinion of this land use consultant that CREC will be consistent with the relevant siting guideline goals and objectives in the Comprehensive Plan and Ordinance as discussed more thoroughly below.

I. SUMMARY OF CREC PROPOSAL

The proposed CREC development will be in proximity to the Spectra / Algonquin operation, having direct access to Wallum Lake Road. Although CREC will own in excess of 67-acres, less than one-half or approximately 29.44-acres will be dedicated to the operation proper. The operation will be aligned along the rear (westerly) portion of the property, thereby maintaining in excess of 37.6-acres in a naturally vegetated state consisting of approximately 26 acres, and a cleared portion in the center that consists of approximately 9 acres that will be used for parking and equipment laydown. The site will have a naturally vegetated frontage which will provide screening from the residences situated along Wallum Lake Road. The operation proper will be situated in excess of one-third of a mile (1,900-feet) from the nearest residences off of Wallum Lake Road and almost four-tenths of a mile (2,100-feet) from the residences on Jackson School

¹ This document, titled "Executive Summary," is a summary of the relevant findings. A full report will be supplemented.

Diminished
by
new
driveway

House Road. Finally, the operation will be well in excess of one-half mile from the residences to the west.

II. STATE ENERGY PLAN

State Energy Plan Directional Objectives

Security:

- **Adequacy.** "Plan to meet overall energy supply needs."
- **Safety.** "Increase the safety of energy conversion and use."
- **Reliability.** "Increase the system's ability to withstand disturbances."
- **Resiliency.** "Increase the system's ability to rebound from disturbances."

Cost-Effectiveness:

- **Affordability.** "Lower overall energy bills."
- **Stability.** "Reduce the impacts of energy price volatility on consumers."
- **Economic Growth.** "Grow and maintain a healthy state economy."
- **Employment.** "Increase employment."

Sustainability

- **Climate.** "Reduce greenhouse gas emissions from energy consumption."
 - **Air Quality.** "Reduce criteria pollution from energy consumption."
 - **Water Use & Quality.** "Reduce the water impacts of energy consumption."
 - **Land and Habitat.** "Reduce the impacts of energy projects on ecosystems."
- DOES IT REALLY?
NOT ACCORDING TO
CDR REPORT
BY NOT REPLACING
AQUA/PER?

Inenergy conducted a comprehensive assessment of renewable options as both required and evidenced in the submitted application to the EFSB. Renewable sources such as solar and wind do not present a feasible source because the State of Rhode Island is a poor locale to accommodate systems on the requisite magnitude. Given the anticipated production shortages and charge by ISO to realize replacement sources that are capable of generating cleaner and more cost efficient energy, a comprehensive approach necessitates the usage of gas in generating electricity. The subject proposal, besides meeting the specific energy needs outlined by the ISO, will also satisfy, and in most instances, exceed both state and local regulatory standards and performance measures.

The Town of Burrillville ("Town") has been well ahead of the state energy mandates due to its long experience with energy production and associated facilities. The Town has therefore already deemed "Electric Generating Facilities" appropriately permissible land uses by allowing their introduction via the granting of a special use permit in the F-5 District where the CREC is proposed to be located. A land use permitted by special use permit, in accordance with state and case law, is a conditionally permitted land use. In other words, a land use that is permissible subject to reasonable conditions of approval, if necessary. This determination results from the Town's understanding of the importance of energy production as it pertains to economic development and provision of affordable energy.

In addition to acknowledging the presence and importance of energy production, the Town likewise imparts the necessity of properly siting such facilities. Siting guidelines are generally outlined in the Comprehensive Plan - Section IX "Land Use Goals, Policies and Implementation Actions."

III. COMPREHENSIVE PLAN CONSISTENCY ANALYSIS

The Comprehensive Plan provides a broad-based outline for siting energy facilities, crafting both the manner in which they will be regulated and detailing those features that necessitate scrutiny. The guidelines in question are individually addressed below by means of a combination of the express support documented within the Comprehensive Plan and the individual studies / assessments prepared by Invenergy's experts.

Policy IX.5.a *"Develop adequate location and siting criteria within the Town's land use policies for power generating plants. These criteria shall be used to negotiate with power plant developers and State Energy Facility Siting Council."*
[Page IX-27]

Implementation Action IX.5.a.1 "Amend the Zoning Ordinance to adequately address power generating plants, including consideration of a floating zone, performance standards, and site plan review."

The Town carefully considered the presence and potential future introduction of "Electric Generating Facilities" and amended the Ordinance to expressly permit them by special use permit within the F-5 District, deeming them "conditionally" permissible land uses. It must be emphasized that the Town could have concluded otherwise, either deeming such land uses prohibited or imposing additional express standards of review within the Ordinance. Standards of review are therefore entirely regulated by the goals and objectives outlined in the Comprehensive Plan. The conducted Comprehensive Plan Citizens Survey reinforces present regulatory applications. The zoning standards reflect the needs of the community and should therefore be enforced as adopted - reemphasizing the Town's recognition and importance of 'Electric Generating Facilities'.

A. Air Quality

Goal II.6 "To ensure that air quality in the Town meets national ambient air quality standards and maintain air quality levels in the Town higher than these standards."

Policy II.6.a "Encourage measures which reduce air pollution levels."

Implementation Action II.6.a.2 "Require that all new commercial and industrial developments meet or exceed national clean air standards."

An air quality impact analysis has been prepared to determine what, if any, potential off-site emission impacts may result from the CREC operation. The completed Air Dispersion Modeling Report, prepared by ESS Group, Inc., dated October 30, 2015, has clearly concluded that air emissions will be entirely regulatory compliant. From a planning perspective, air quality, as regulated by both federal and state agencies, is based on regional, rather than very localized, standards, because air knows no boundaries. There are no obstructions to air flow or quality - air traverses both municipal as well as state jurisdictional boundaries. Therefore, when evidencing that emissions are well below established health guidelines, this is not merely introducing technical data, but providing actual scientific assurance that the public health, safety and welfare has been carefully considered. Consideration must also be given to the numerous

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coal- and oil-fired generators that presently represent approximately 28% capacity of the overall region. Per the Invenergy Application, were the emissions associated with said plants, in conjunction with all other operating resources, sampled over a period of time, the results would evidence a distinctive difference in localized air quality. The Town recognizes the impact of air quality across jurisdictional boundaries, as evidenced by Natural and Cultural Resource Implementation Action II.6.a.3 of the Comprehensive Plan.

Implementation Action II.6.a.3 "Lobby adjacent communities to quickly address potential air quality problems within their boundaries."

The much cleaner and more efficient CREC operation will factor in the decommissioning and elimination of these aged plants that rely on sources of fuel that are far less clean than natural gas. Therefore, based on Invenergy's Application and the Air Dispersion Modeling Report, it can be scientifically proven that approval of the referenced proposal will result in improved air emissions compliant with current regulations.

B. Groundwater Resources

Goal II.2 Natural Resource Issues - *"The following issues relating to natural resources have been identified through the planning process, and are the focus of the goals, policies and recommendations of this element."* [Page II-22]

CREC uses far less water than present power plants, upwards of 90% less water consumption. Water is proposed to be provided via a dedicated line from Well No. 3A, which was contaminated several years ago, and therefore deactivated.

Comprehensive Plan - Supply Source(s)

"The need for this permanent interconnection was due to a contamination event that occurred within the District's system in late summer of 2001 that directly impacted the District's primary supply wells number 3 and 3A.... Due however to the incidence of groundwater contamination of the aquifer in which these three wells are located any such efforts to reactivate these wells is on hold for an indefinite time period. It is likely that any efforts for well reactivation will be dependent upon remediation efforts within the aquifer that are ongoing by State regulatory agencies." [Pages III-17 - III-18]

The present proposal is to introduce an activated carbon treatment system to improve the water quality for industrial operational purposes. Invenergy proposes to purify the water extracted from Well No. 3A, eventually realizing residential drinking standards. This is a considerably positive by-product of the proposed development that could never have been anticipated, a consideration that all reviewing agencies must take into account in their advisory role. Present water supply demand has been negatively impacted by the deactivation of the referenced well(s); as such, future need may necessitate their reactivation - expense being the limiting factor.

Goal II.3 To ensure that current and future development does not adversely affect . . . environmentally sensitive areas are protected, especially water supply and quality. [Pg II-45]

Used water will be directed to the Burrillville Waste Water Treatment Facility (hereinafter "WWTF"). It is anticipated that greater than fifty-percent of the water withdrawn from the groundwater will be returned via the WWTF. Therefore, in order to assure the community that there will be no impact on groundwater supply - resulting in depletion for future land uses - a conservative peak approach was applied, resulting in the conclusion that there is more than sufficient water supply.

C. Visual

Comprehensive Plan [Pages II-19 - II-21]

"Too often, concern for the visual environment has been dismissed as being a nonessential appurtenance to land use decision-making. Such an attitude is both archaic and unresponsive to public need. This fact is clearly demonstrated by citizen outcry against development projects that fail to fit into the character of the Burrillville landscape. The citizen survey indicated that the characteristics of Burrillville which people liked best were visual qualities: its small town character and natural beauty."

"Protection of these visually important spaces may be achieved through a variety of techniques, including:"

o *"Revise zoning and subdivision regulations to include scenic criteria and design guidelines such as the following:"*

- *"Structures should not be placed in open fields."*

- *"Buildings should be located adjacent to tree lines and wooded field edges so as to blend with the natural landscape."*

- *"Existing farm and logging roads should be incorporated into subdivision design, linkages to open spaces, etc."*

- *"Naturally vegetated areas between the new buildings and roads should be preserved and their alteration restricted."*

↳ SUCH AS ACCESS ROADS.

- *"Building setback lines should be located to encourage development in the most suitable areas for development."*

Visual

o *"Replacement of existing vegetation with development can destroy the natural rural character and spatial definition of Burrillville."*

o *"Excessive scale, mass and glaring color of structures, or vegetational clearing and infrastructure construction that does not conform to the form and contour of the terrain can have a substantial negative impact upon the visual character of Burrillville."*

There are extensive surrounding land resources that serve as permanent buffers, due to their current ownership and long-term, non-residential usage. The State of Rhode Island owns two

(2) such distinct parcels that immediately abut and surround AGT property to both the southwest and entire south. The referenced property is the "Casimir-Pulaski Memorial State Forest" and occupies in excess of 2,905-acres. Furthermore, the Narragansett Electric Company owns two (2) parcels to the immediate southeast of AGT property, occupying in excess of 37-acres.

Another pertinent factor is proximity to residential land resources, whether improved or unimproved. The Spectra operation is situated approximately one-third of a mile (or 1,800-feet) from the nearest residences lining both sides of Wallum Lake Road to the east. The nearest residences to the west along Doe Crossing Drive are upwards of two-thirds of a mile (or 3,400-feet) distance. Distance and vast vegetative growth, even when disturbed by introduction of man-made features such as Algonquin Lane, provide abundant screening. This is evidenced by the following photograph illustrating the residential view due west down Algonquin Lane.

Invenergy has heeded each and every one of the design objectives outlined for averting or at least, minimizing visual intrusion. The proposed operation will be situated such that it aligns itself with the rear property boundary, maintaining greater than one-half the property in a naturally vegetated state. The referenced portion will be sandwiched between the operation and Wallum Lake Road to the east, thereby screening the plant from the closest pocket of residential dwellings. The proposed operation will be situated upwards of two-thirds of a mile (3,600-feet) from the residences off of Buck Hill Road to the north and residences along Doe Hill Road to the west. Given the vast land resources associated with the Casimir-Pulaski Memorial State Forest to the south, there are no associated visual concerns. - EXCEPT STACKS

^{STACKS}
The plant itself ~~mirrors~~ the adjacent Spectra / Algonquin Compressor Station operation in regard to overall height and massing, and therefore has limited visibility. Once again, this can be substantiated by the following photograph taken from the perspective of the nearest residence looking due west, down Algonquin Lane. The Spectra / Algonquin Compressor Station operation is not even remotely visible.



READY?

The component of the operation that will be most visible, and therefore, requires the greatest scrutiny are the accessory facility stacks that will be 200-feet in height. Although they cannot be rendered invisible, their sleek flag-like stature are readily merged and lost into their respective backgrounds. Therefore, the stacks will likewise be non-intrusive. Given the vast distances and excessive mature vegetative growth, the facility is rendered almost invisible, as evidenced by the photographic simulations submitted by ESS Group, Inc. — PLEASE PROVIDE.

D. Noise

Outside of concern for impact on the ambient air quality and visual serenity, is concern regarding potential noise disturbances, both during construction and on-going with the operation. The Town's regulatory noise level standard at the respective residential property boundaries is 43 decibels. The applicant has perhaps expended more time and effort in satisfying this requirement - sole exception being provision of the cleanest possible energy source using a fossil fuel. Compliance has resulted from both researching and pursuing the most noise reducing mechanical components to encapsulating (sound-proofing) vast portions of the overall system. See "Noise Level Evaluation for the CREC," dated October 2015; "Transient Operation Noise Level Evaluation for the CREC," dated March 2016. A mandatory maximum 43-decibel level will be achieved during standard CREC operation.

INCLUDING START UP
& SHUT DOWN.

E. Economic Development

Existing Economic Development - *"The following types of economic development currently exist in Burrillville:"* [Page VII-9]

"Large private utilities, including gas and electric companies and associated distribution and transmission lines."

Economic Development Strengths - *"Burrillville has certain characteristics which should be considered advantages in promoting economic development, among others, as follows:"* [Pages VII-17 - VII-18]

o "Presence of large utility companies, and electric, and associated distribution and transmission lines."

VII.3 Goals, Policies and Implementation Actions

VII.1 *"To broaden the sources of Town revenue through development in the industrial and commercial sectors in order to ensure a sound financial future and assist in funding the achievement of Town goals."* [Page VII-26]

VII.1.a *"Maintain industrial and commercial sector growth at a rate adequate to support the Town's population in a manner consistent with the Town's labor characteristics, land capabilities and environmental objectives."*

The proposed CREC will have profound impact on the State and Local Economies - resulting in both direct and indirect benefits. Direct benefits include major reduction in energy production thereby realizing the following:

ESS Group Application [Page 22] - *"From 2019 - 2022, cumulative savings to the Rhode Island customer are projected to be greater than \$280 million, or approximately \$70m annually."*

Further direct benefits include the numerous jobs to be created during construction, and to a lesser degree, on-going operational employment. Indirect benefits include the long-term on-going energy cost savings that are passed onto both residential and commercial consumers. These savings, in part, are then expended within the general economy. Additional indirect benefits include what is known as the multiplier effect - for example, establishing "...Indirect jobs include the jobs created to provide the materials, goods, and services paid for with the wages from the direct jobs." [Invenergy Application - Page 22]

The referenced analysis not only evidences Comprehensive Plan consistency, but substantiates the need for both business retention and expansion, given the vast limited industrial and commercial land resources and heavy reliance on a residential tax base.

IV. CONCLUSION

The Town not only acknowledges the importance of the energy industry, but details the guidelines by which they can be sited and supported. This report has carefully reviewed and addressed each and every applicable Comprehensive Plan Goal and Objective and relevant sections of the Ordinance, noting how they in fact support the proposed development. It is therefore the professional opinion of this land use consultant that the proposed CREC development will meet, and in most instances, exceed all regulatory standards. It will also realize improvements that presently appear insurmountable, such as the remediation of contaminated Well No. 3A.